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An Address.[1]

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WHEN you did me the honour to elect me President-elect of our Branch two years ago I realized that you and I would have to face this ordeal of the next few minutes. It will be only a few minutes, as we have all had enough addresses and lectures lately. I had hoped that, having had Congress so recently, you would have let yourselves and myself off.

I suppose that all the presidents of this Branch since its inception in 1911 must have been a little concerned on election as to how they would fill the position and how they would live up to the office. I apologize now for my own shortcomings.

Not the least of my worries has been to think of something to say now. Quite frankly I do not feel capable and dignified enough to give a presidential address to such a body as our Association. For nearly two years I tried to think of something that I could say, and when I had thought of a few things it was apparent that many people had said them much better previously. Most of my thoughts were expressed by various speakers during Congress.

We belong to a very old and privileged profession. Throughout man's history he has been battling to save himself from inevitable death, so our history is as old as man himself. It grew along with his spiritual and religious beliefs. In fact many of our predecessors were priests, and the early studies of medicine were very closely linked with theology.

There were codes of medical practice long before Hippocrates and his school in the fifth century B.C. A well-known one is that of Hammurabi, a Babylonian king, written some two thousand years or so B.C. This made regulations for practice, and fixed fees and penalties. Some of its clauses read:

> If a doctor has treated a gentleman for a severe wound with a bronze lancet, and has cured the man, or has opened an abscess of the eye for a gentleman with a bronze lancet and has cured the eye of the gentleman, he shall take ten shekels of silver.
>
> If the doctor has treated a gentleman for a severe wound with a lancet of bronze and has caused the man to die, or has opened an abscess of the eye for a gentleman and has caused the loss of the gentleman's eye, one shall cut off his hands.
>
> If the doctor has treated the severe wound of a slave of a poor man with a bronze lancet and has caused his death, he shall render slave for slave. If he has opened his abscess with a bronze lancet and has made him lose his eye, he shall pay money, half his price.

[1] Retiring president's address delivered at the annual meeting of the Tasmanian Branch of the British Medical Association on March 29, 1958.

> If a doctor has cured the shattered limb of a gentleman, or has cured the diseased bowel, the patient shall give five shekels of silver to the doctor.

Hippocrates brought something new to medicine. (i) He inspired an ideal for future doctors and left us an ethical code which we follow very largely to the present day. (ii) He correlated the knowledge of his period and started his world of medicine on a scientific way. (iii) He separated the study of medicine from the theology of his times. (iv) I think we might say that he recognized the broad specialties of medicine and surgery. Perhaps it is due to him in some measure that the relative position of the physician and surgeon is so well established. In more recent times, of course, we have admitted to our ranks those who cut for the stone. Through the two thousand odd years since the time of Hippocrates medicine has developed slowly and irregularly along the paths that Hippocrates blazed. It is true that for hundreds of years at times the scientific approach was largely lost, and authority was quoted, and no probing inquiries were made to support or refute authority. The pronouncements of Galen remained absolute for centuries; they may even have held up medical progress for a long time. But here and there discoveries were made that kept the fire of scientific thought alive. From the time of the Renaissance scientific thought developed apace, and scientific discoveries have grown in a geometrical progression, so that now it is impossible for one man to keep up with more than a small part of them.

The revelations of science were applied to medicine, and at about the time when mathematics, physics and chemistry were really beginning to have a very great effect on the lives of our predecessors, Dr. Charles Hastings in Worcester decided to form the Provincial Medical and Surgical Association. This was formed in 1832 and became the British Medical Association in 1856.

It is interesting and pertinent to remember that the Provincial Association was formed at a time when, and at least partly because, the Colleges and licensing bodies of the time were concerned more with their local cities than with the country as a whole. At the time of the foundation of the Association, registration of the profession was chaotic; in fact there were many more unregistered practitioners than there were registered. The Association eventually pressed for a uniform registration. This was not achieved I am glad to say, but at least the aim was eventually accepted of having only registered practitioners recognized legally.

The Association has fought for many causes since its inception. It is possible that our own Association in Australia may have to fight an issue concerning our own way of medical practice in the near future. We may have to fight for our liberty, for a way of practice that we think right, and not have another form of service thrust upon us. If this fight does eventuate, we must be united. We must not be divided as were our colleagues in Great Britain after the last war.

As one of our profession, Sir Thomas Browne, wrote some three hundred years ago in his *Religio Medici*: "For heads that are disposed unto Schism and complexionally propense to innovation are naturally indisposed for a community, nor will ever be confined unto the order or œconomy of one body; and therefore when they separate from others they knit but loosely among themselves." He adds: "'Tis true that men of singular parts, and humours, have not been free from singular opinions and conceits in all ages."

The British Medical Association is the only body in Australia which can speak for the profession as a whole. With the growth of specialization that inevitably followed the development of science, numerous bodies of specialists have formed. There are at least sixteen in Australia. No good can come from each body speaking and negotiating for itself. The Royal Colleges have accepted the principle that the Association maintains—namely, that it should be the only negotiating body for the profession. It is to be hoped that the other specialist groups will agree with this proposition too. If we accept the principle that we are all doctors, not surgeons, physicians, psychiatrists, dermatologists, etc., I think that we must all agree.

When we talk of liberty, we must attempt to define what we mean by liberty. We of course are thinking not only, not even primarily, of ourselves. As a profession we think also of our patients, and what is best for them. That is important I think; it is most necessary that we remember the ideal of Hippocrates, and do not become too much blinded by a law and regulations which are very reminiscent of the code of Hammurabi. At times we are all liable to be forgetful.

Liberty, although fundamental to our way of life, is not easy to define. An American judge, Learned Hand, said this in a speech to his countrymen during the last war:

> What then is the spirit of liberty? I cannot define it; I can only tell you my own faith. The spirit of liberty is the spirit which is not too sure that it is right; the spirit of liberty is the spirit which seeks to understand the minds of other men and women; the spirit of liberty is the spirit which weighs their interests alongside its own without bias; the spirit of liberty remembers that not even a sparrow falls to earth unheeded; the spirit of liberty is the spirit of Him who, near two thousand years ago, taught mankind that lesson it has never learned, but has never quite forgotten: that there may be a kingdom where the least shall be heard and considered side by side with the greatest.

I can find nothing better. Liberty demands more than bondage.

But our Association is concerned not only with being a negotiating body for the profession. It is very interested too with matters outside politics, with those things which interested Hippocrates.

It is vitally concerned with the ethics and honour of our profession, and in spite of the two thousand years and more since Hippocrates gave us his code, his ideas and ideals remain ours today. Certainly at times problems arise which puzzle us all as to what is the right thing to do, and what is the wrong; but if we stick to the principles he enunciated and the ideal he suggested, we know as a rule what is the right and what is the wrong.

Our Association is interested too in that cousin of ethics, etiquette. This is merely a code of behaviour for us to observe between ourselves. It is often difficult to observe completely, and its interpretation is now more elastic than it was formerly. However, it should not be forgotten, and must be regarded as of very great importance for the continuance of harmony among our members. Many of our patients do not understand its purpose, and do not realize that is is at least as much for their own benefit as for our own. I reiterate—we can all be forgetful.

As an Association I am not sure how much we are interested in theology: but I am sure that in our hearts most of us agree that science as we know it is not the whole answer to our problems, and never will be. For my part I am quite sure that we have to resolve the apparent conflict between science and theology. I do not comprehend it, but I understand that great thinkers of the modern world agree that this is possible.

We are of course supremely interested in the scientific approach to medicine and in the specialties that derive from it. In his prospectus for the proposed Provincial Association, Charles Hastings published in the last number of his *Midland Reporter* several clauses regarding the scientific objectives he envisaged:

> 1. Collection of useful information, whether speculative or practical through original Essays, or Reports, or cases occurring in Provincial Hospitals, Infirmaries or Dispensaries; or in Private Practices.
>
> 2. Increase of knowledge of the Medical Topography of England, through Statistical, Meteorological, Geological, and Botanical Enquiries.
>
> 3. Investigation of the Modifications of Endemic Diseases and Epidemic Diseases on different situations, and at various periods, so as to trace so far as the present imperfect state of the art will permit, their

connections, with soil or climate or with the localities, habits, or occupations of the people.

4. Advancement of Medico-legal Science through succinct reports of whatever cases may occur in the Provincial events of Judicature.

5. Maintenance of the Honour and Respectability of the Profession generally, in the Provinces, by promoting friendly intercourses and free communication of its members; and by establishing the harmony and good feeling which ought ever to characterize our liberal profession.

Inevitably the Colleges and other specialist bodies attract very much scientific thought and work, but the Association is interested in the work of all. It is perhaps even able to correlate the scientific thought of the various bodies, just as Hippocrates correlated the knowledge of his period.

We are particularly interested in the study of medicine as a whole, and realize that our patients need not groups of specialists to look after them, but doctors who know them as people, doctors who can perhaps use some of the old priestcraft of our predecessors as well as the fragments of scientific lore we have been able to learn and remember. Doctors who can practise the art as well as the science of medicine are required.

It is because I believe that we, as an Association, are so concerned with this matter that I personally view with some apprehension the appearance of another group of specialists—the College of General Practitioners. Please do not misunderstand me. I feel that the Association must have failed in some respect if the necessity for the formation of such a body is real, and that with its formation the Association may lose something which is very necessary for it.

So I would conclude by saying that if we as an Association continue to follow in the paths of Hippocrates, and only if we follow his ideal—we must not press overstrongly for a Hammurabi-like code—we shall be able to hand over to those who follow us in the way that one of the pioneers of the Provincial Association hoped. Dr. John Connolly giving the Retrospective Address at Birmingham in July, 1834, said:

> We have no reason to apprehend that our successors will look back to the first proceedings of the Association with any feelings but those of respect; they will see that our regards, not narrowed to our own little day, were extended forward to their days, and the hidden days beyond them. Animated by the same pure ambition as the founders, I trust they will carry on medical knowledge beyond the point at which they themselves became engaged in its pursuit, and in their turn will cheerfully transmit it, by them increased, to other generations, by whom, with the permission of Providence, it may be more and more cultivated to the end of time.

SEVERE EFFECTS OF INFLUENZA VIRUS INFECTION.

By J. A. FORBES,
Deputy Medical Superintendent, Fairfield Hospital, Melbourne.

THE Asian type A influenza epidemic in Melbourne demonstrated clearly some of the relatively infrequent, more severe effects of influenza virus infection as a result of their concentrated occurrence in relatively large numbers.

Six hundred and seventy-two patients with disease attributed to this epidemic of influenza were admitted to Fairfield Hospital, Melbourne, during July and August, 1957. These were mainly the more severe and complicated cases of the epidemic which presented in three main clinical groups and were diagnosed as influenza, obstructive laryngo-tracheo-bronchitis and pneumonia. The relation of these cases to the epidemic was established by their associated increased incidence (Figure I), clinical details and the isolation of the Asian type A influenza virus from throat washings of sample groups. The number of infants and young children with obstructive laryngo-tracheo-bronchitis due to the influenza virus was unexpectedly high and suggests that this is a relatively common manifestation of influenza in the very young (Figure II). The number of patients requiring admission to hospital formed only a small proportion of the total number of cases of influenza in Melbourne at the time, which has been assessed at more than 300,000 (Keogh *et alii*, 1958).

Study of these more severe cases indicated that the uncomplicated virus infection itself was capable of causing death occasionally, whilst the severity of the secondary pneumonia suggested that without antibiotics the mortality rate probably would have been high. Furthermore, examination of these patients with pneumonia suggested that the variation in the severity of the epidemics reported from different centres was probably due to differences in the carrier rates of various bacterial respiratory pathogens.

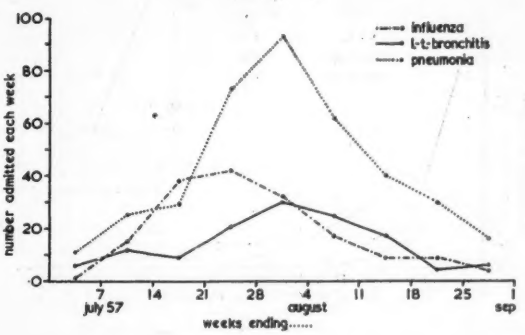

FIGURE I.

Graph showing the number of patients in each clinical group admitted to hospital each week during the epidemic period.

Nose and throat swabs taken routinely from patients admitted to Fairfield Hospital provided an index of the carrier rates of various organisms in Melbourne. It was found that the prevalence of pneumococci increases greatly each winter and, to a lesser extent, the isolation rate of group A streptococci also increases in the autumn and winter. These changes are eventually associated with increased rates of admission to hospital of patients with respiratory and throat infections. This increase had been observed prior to the onset of the Asian influenza epidemic. In the summer of 1956-1957 cultures from about 8% of patients admitted to the hospital showed a significant growth of pneumococci, whereas during the month prior to the commencement of the influenza epidemic this figure had risen to 30%. The isolation rate of group A streptococci had also risen to a lesser extent. This predominance of penicillin-sensitive organisms in the community indicated the use of penicillin as the initial basis of treatment of the numerous patients with pneumonia. The principles and results of antibiotic treatment of this large group of patients with pneumonia will also be discussed.

Clinical Aspects.

The cases attributable to the influenza epidemic could be classified in three main diagnostic groups as influenza, obstructive laryngo-tracheo-bronchitis and pneumonia. Figure I shows the concurrence of the three types of diseases during the period of the epidemic. The number of admissions to hospital for pneumonia lagged behind that for influenza by about 10 days, as would be expected, being a sequel to influenza in these cases. The lag in the number of admissions to hospital for obstructive laryngo-tracheo-bronchitis appears to be explained by the predominance in this group of infants and pre-school children who would be expected to acquire the infection later from the older children and adults who would first contact the disease outside the home.

Influenza Syndrome.

One hundred and sixty-nine patients were diagnosed as suffering from uncomplicated influenza, and influenza virus was isolated from the throat washings in 41 of 76 patients sampled. About 40 of these patients, aged from 17 to 21 years, who came from institutions which did not have nursing facilities, were regarded as suffering from moderate influenza; the remainder were admitted to hospital either because of the severity of the condition or because of atypical symptoms which sometimes suggested meningitis.

At the time of their admission to hospital most of the patients gave histories of illness of one to four days in duration. The symptomatology was variable, but the basic illness consisted of malaise, fever which was followed by a transient sore throat, headache which was often characteristically severe, backache, aching limbs, cough and mild

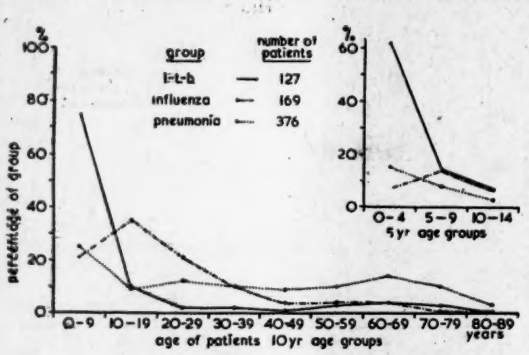

FIGURE II.

Age distribution of patients in each of three clinical groupings admitted to Fairfield Hospital, Melbourne, during July and August, 1957.

conjunctivitis. In general there were few clinical signs associated with the illness, which, although transient, made patients miserable. The patients were often flushed, with reddening and patchy lymphoid hyperplasia of the pharyngeal walls. In the moderate cases the illness lasted for about four or five days. In these cases due solely to virus infection the blood leucocyte counts were either normal or reduced, even to 3000 cells per cubic millimetre, often with a preponderance of lymphocytes.

The symptomatology varied considerably in the more severe cases, and different patients emphasized different symptoms as their major complaint. Headache was the commonest single symptom, but in some patients less common symptoms dominated the disease; for example, vertigo and a pleuritic type of pain formed the chief complaint in some, whilst transient diarrhœa and vomiting were emphasized by others.

The following notes indicate the frequency of occurrence of the commoner symptoms. About 60% of patients complained of severe headache, often associated with generalized aches and pains, particularly backache, and in 20% (31 cases) the combination of headache and meningismus was such that lumbar punctures were performed. In all these cases the cerebro-spinal fluid was normal. About 50% complained of a dry or sore throat at some stage of the illness, whilst an equivalent number had a cough, which later in the illness produced small amounts of sputum. Some hoarseness of the voice was often present in these patients. Sore eyes with photophobia and evidence of mild conjunctivitis were present in about 15% to 20%. Rigors and nausea were each present in about 15%, and transient diarrhœa was also observed in about the same proportion. Delirium was not uncommon in the children, in a few of whom febrile convulsions were a feature of the illness. Vertigo and nausea, which persisted for a couple of weeks, aggravated the illness in a small proportion of patients. This appeared to be due to labyrinthitis. A pleuritic type of pain without X-ray evidence of pulmonary involvement was observed in a few patients. Although unaccompanied by secondary bacterial infection, some of the patients presented with severe illnesses with high fever, delirium and dusky cyanosis, but with few clinical signs apart from scattered fine rales in both lungs associated with throat changes. A few babies developed intermittent wheezing with cyanosis, apparently due to bronchiolitis. The twin brother of one of these, aged three months, was found dead in bed one morning having been reasonably well the night before. A transient erythematous rash not unlike that seen in rubella was observed in 10 patients from whom influenza virus was isolated.

Obstructive Laryngo-Tracheo-Bronchitis.

One hundred and twenty-seven patients were admitted to hospital with moderate or severe laryngeal obstruction. Of these, 75% were aged nine years or less, whilst 61% were less than five years of age, with a predominance of infants in whom the laryngeal obstruction was often severe and prolonged (Figure II). The occurrence of such a large number of cases of laryngo-tracheo-bronchitis was an unexpected feature of the epidemic and suggests that this represents a common mode of presentation of influenza in infants and young children. The divergence of the age incidence curves of uncomplicated influenza and laryngo-tracheo-bronchitis in the earliest age group lends weight to this suggestion (Figure II). The onset of the disease in this group was characterized by hoarseness and a croupy cough associated with fever followed by stridor, which in many cases developed within 24 hours. The white cell counts of these patients were either normal or low, with a predominance of lymphocytes, unlike those seen in bacterial laryngo-tracheo-bronchitis, which are commonly high with a predominance of polymorphonuclears.

Influenza A virus was isolated from the throat washings of 14 patients out of a sample group of 30 patients so examined to confirm the ætiology of the condition.

Whereas in the usual bacterial laryngo-tracheitis stridor improves with antibiotics after from one to three days in a steam tent, in these cases the laryngeal obstruction was prolonged and stridor often persisted for periods of five days. The course of the illness was unaltered by antibiotics.

It is not surprising that the patients showing evidence of laryngeal obstruction were predominantly infants and young children whose airways are small and likely to be impaired by the inflammation and œdema produced by a pathogen with a predilection for respiratory epithelium and lymphoid tissue. It seems likely that influenza in young children may well predispose to secondary bacterial laryngo-tracheo-bronchitis and accelerate the development of complete obstruction.

In the older age groups hoarseness of voice was a fairly frequent accompaniment of the infection, but no difficulty in breathing occurred in the vast majority of these patients.

During the 1919 influenza epidemic many patients of all ages died with hæmorrhagic tracheitis, which appears to be akin to this syndrome (McLorinan, 1958). That these effects have been pronounced only in young children suggests that the 1957 infection was less severe; they nevertheless demonstrate the potential dangers of influenza virus infection even when uncomplicated by bacterial infection.

Pneumonia.

Three hundred and seventy-six patients were admitted to hospital with pneumonia, the diagnosis of which was based on clinical observations and confirmed by radiological evidence. These patients presented with the clinical signs of bacterial pneumonia with histories varying in duration from one to fourteen days (94 had histories of three days or less), frequently commencing with an account of an influenza-like illness.

In the majority of cases the blood leucocyte counts were raised by an increase in the polymorphonuclear leucocytes.

Admission of patients to hospital was sought by practitioners in most cases on account of the severity of the illness. All age groups were represented (Figure II). The younger age groups dominated the admissions to hospital,

but bacterial complications were probably proportionately more frequent amongst those patients with influenza over the age of 40 years; these age groups are smaller and in them influenza occurred less frequently (Keogh *et alii*, 1958). This is not reflected in Figure II, which represents only the severe cases requiring admission to hospital without relation to the incidence of influenza in relation to age group populations in Melbourne.

These cases were attributed to the influenza epidemic on the grounds of their associated increase in numbers which were unusually high (Figure I), the frequency of an associated history of influenza at the onset of illness, and the isolation of influenza virus (Asian type A) from 22 of a sample group of 68 of these patients. The virus was isolated from throat washings of patients at different stages of the illness, between two and 14 days from the onset of symptoms, and also from the lungs at post-mortem examination.

The bacterial ætiology of pneumonia in the individual patient was regarded as proven only when an organism was isolated from pleural fluid when effusion was present or from the lungs at post-mortem examination. No lung punctures were performed.

The association of an organism isolated from a throat swab or sputum was considered to be suggestive but not conclusive in the individual case. On more than one occasion at the post-mortem examination of a patient in whom both pneumococci and staphylococci had been isolated previously from the naso-pharynx or sputum, the pneumonia was of the pneumococcal lobar type, yielding a pure growth of pneumococci on culture. Conversely, isolation of one organism was not regarded as exclusive, particularly in patients previously treated with antibiotics, and in many patients no bacterial growth was obtained from specimens.

It was considered that the over-all isolation rate of pathogens from all patients admitted to hospital provided a useful practical indèx of the ætiological agents as a basis for the initial treatment of these patients. It was apparent that the commonest pathogen was the pneumococcus, and this was confirmed by the clinical details, by X-ray appearances and even by post-mortem findings which showed it to be most commonly involved in death. The streptococcus group A appeared to be the next major ætiological pathogen, and to a minor extent, even in this selected severe group, the staphylococcus.

Although about one-third of these patients had had antibiotic treatment (penicillin, sulphonamide or tetracycline) prior to their admission to hospital, pneumococci were cultured in profusion from swabs or sputum of 101 of these patients, group A streptococci from 37, other pathogenic streptococci, mainly *S. fæcalis*, from six.

Although staphylococci were isolated from swabs and sputum from 66 patients, many were isolated from nasal swabs only, and most were not considered to be causal. The diagnosis of staphylococcal pneumonia was ultimately made only for patients with radiological appearances consistent with staphylococcal infection, particularly the appearance of pulmonary cavitations during the recovery phase, apart from the isolation of staphylococci from pleural fluid or from the findings at post-mortem examination. On these grounds, 16 patients were diagnosed as suffering from staphylococcal pneumonia. The organism was associated with the deaths of five patients (Table III).

Two cases of Friedländer's pneumonia were observed and a death occurred from this infection after the period under discussion.

Treatment.

Treatment of these patients varied according to the severity, mode of presentation and complications of the virus infection.

Influenza and Laryngo-Tracheo-Bronchitis.

The moderate cases of uncomplicated influenza were given palliative treatment with codeine and aspirin mixtures, but when respiratory symptoms and fever persisted beyond a time when improvement could be anticipated, antibiotics such as penicillin and tetracycline were used prophylactically. Patients whose illness was classified as severe at the time of their admission to hospital, including the infants and children with laryngo-tracheo-bronchitis, were treated as if secondary bacterial infection was already present, as the consequences of untreated secondary bacterial infection in these were likely to be fatal. The patients with laryngo-tracheo-bronchitis were managed in the usual way for laryngeal obstruction in children in a steam tent; occasional cases required tracheotomy.

Pneumonia.

The main considerations in deciding the initial antibiotic treatment of a patient after the collection of material for bacteriological investigation were (*a*) knowledge of the predominant pathogens in the population, (*b*) the severity of illness and (*c*) specific factors in the individual patient.

Since pneumococci were by far the most prevalent pathogens isolated in the community at this time and to a lesser extent hæmolytic streptococci group A, penicillin in dosages which varied according to the size of the patient and the severity of the disease formed the basis of treatment in almost all cases. It was combined with other antibiotics according to the assessment of the individual patient, the results of X-ray examination, thoracic paracentesis and subsequently the results of bacteriological investigation. In the very severe adult cases, doses of two million units of penicillin were given every two hours with dramatic results in many cases, and it was apparent that these large doses caused more rapid subsidence of fever and toxæmia than doses of one million units every six hours. In other circumstances, such as those suggested for the epidemic of 1919, when *Hæmophilus influenzæ* was alleged to be an important secondary invader, a different basic antibiotic would perhaps be selected.

Patients with very severe pneumonia or with pleural effusion were assumed to have an unusual infection and were accordingly treated with antibiotics to cover a wide range of infections on the grounds that these patients were too ill to accept the risk of unsuitable, restricted antibiotic therapy. In such patients, combinations of penicillin, tetracycline, streptomycin, erythromycin and chloromycetin were used (Table I).

TABLE I.

Antibiotic Combinations Selected for the Initial Treatment of Patients with Pneumonia.

Drugs.	Number of Cases.
Penicillin alone	82
Penicillin and tetracycline	201
Penicillin *plus* streptomycin	15
Penicillin *plus* streptomycin *plus* erythromycin	25
Penicillin *plus* streptomycin *plus* tetracycline	13
Penicillin *plus* streptomycin *plus* chloramphenicol	6
Penicillin *plus* chloramphenicol	15
Penicillin *plus* erythromycin	15
Streptomycin *plus* tetracycline	1
Tetracycline alone	2
Chloramphenicol alone	1

Other antibiotics were initially selected for use in conjunction with penicillin according to the likelihood of staphylococcal and other less frequent infection in each individual case. It was considered that infection by unusual pathogens was more likely in (i) patients who had a history of previous respiratory disease such as chronic bronchitis, asthma and emphysema, (ii) patients with associated illness, (iii) patients with suggestive X-ray findings, (iv) very young and elderly patients, and (v) patients who had frequented hospitals. The ability of a patient to absorb oral antibiotics and the desirable speed of effect were considered when selecting antibiotics and the route of administration. For example, in a patient in whom intestinal absorption was considered to be doubtful, a drug was chosen which could be administered intramuscularly, or even intravenously when a high serum level appeared to be required rapidly. A history of allergy to antibiotics, particularly to penicillin, also influenced the initial choice of antibiotics in a few cases. In this group, as in severely ill patients, various drugs were used in combination with

penicillin to provide an adequate cover for such unusual pathogens as staphylococci, Friedländer's bacillus, *H. influenzæ* and various fæcal organisms (Table I).

TABLE II.

Associated Diseases in Patients Whose Deaths were Precipitated by Influenza Virus Alone.[1]

Sex.	Age. (Years.)	Associated Disease.
Male.	34	Coarctation of the aorta.
Female.	89	Nephrosclerosis.
Male.	76	Nephrosclerosis.
Male.	38	Rheumatic carditis, congestive cardiac failure.

[1] Influenza virus (Asian type A) was isolated from the lungs of all these patients.

Antibiotics Selected.

Table I contains a list of the various antibiotic combinations used in the initial treatment of these patients on the basis of the considerations given earlier. When a choice seemed feasible, the broad spectrum antibiotics were deliberately varied in different patients to minimize the likelihood of "selecting" strains of organisms within the wards in which these patients were being nursed.

Penicillin was used alone for 82 patients who were admitted to hospital at an early stage of the disease. Tetracycline was combined with penicillin in the treatment of 201 patients in whom a broader antibiotic spectrum of treatment seemed desirable. This combination was changed occasionally according to subsequent bacteriological findings. The combination of penicillin, streptomycin, erythromycin and chloromycetin shown in the list were used in those patients in whom it was considered that delay in the selection of the appropriate antibiotic would result in the death of the patient. Chloromycetin was used in dosages of 50 milligrammes per kilogram per day up to a maximum of four grammes per day, tetracycline in doses of 20 to 30 milligrammes per kilogram per day, erythromycin in doses of 20 milligrammes per kilogram per day administered at six-hourly intervals, and streptomycin in doses of up to two grammes per day administered at twelve-hourly intervals.

TABLE III.

Table Showing Brief Details of Findings in Patients Who Died of Pneumonia.

Sex.	Age in Years.	Duration of Illness Before Admission to Hospital. (Days.)	Clinical and/or Post-Mortem Findings.	Organism Isolated.	
				From Throat (T) and Nasal (N) Swabs.	From Lungs at Post-Mortem Examination.
M.	3/52	7	Extensive staphylococcal bronchopneumonia in both lungs.	Staphylococcus (resistant only to penicillin) (T) (N).	Staphylococcus (resistant only to penicillin).
M.	5/52	7	Right lung solid with necrotic patches characteristic of staphylococcal infection.	Staphylococcus (T) and pneumococcus.	Staphylococcus (resistant only to penicillin).
F.	2	10	Pneumococcal lobar consolidation in both lungs.	Pneumococcus.	(V.)
F.	4	21	Pneumonia, pleural effusion, myocarditis, acute nephritis.	Group A streptococcus.	Group A streptococcus.
F.	26	6	Six months pregnant. Both lungs almost completely consolidated.	Pneumococcus.	Pneumococcus and *Streptococcus fæcalis*; (V).
F.	36	7	Pneumonia *plus* acute nephritis.	Group A streptococcus and pneumococcus.	
M.	41	14	Pneumococcal lobar consolidation involving 75% of pulmonary tissue.	Pneumococcus.	Pneumococcus; (V).
F.	42	2	Bilateral pneumococcal consolidation.	Staphylococcus (T) (N).	Pneumococcus.
M.	40	2	Congestive cardiac failure.	Staphylococcus (T) (sensitive to all antibiotics).	
M.	55	3	Lobar pneumococcal consolidation, left lower lobe, staphylococcal bronchopneumonia of right upper lobe.	Pneumococcus, staphylococcus (resistant only to penicillin).	Pneumococcus and staphylococcus.
M.	59	14	Old staphylococcal empyema with adjacent pulmonary abscess.	Group A streptococcus and staphylococcus (T) (N).	Staphylococcus (resistant to penicillin only).
F.	60	3	Myocardial infarction, congestive cardiac failure.		
M.	61	21	Right middle and left lower lobes involved, probably due to staphylococcal infection.	Pneumococcus and staphylococcus (T) (N).	
M.	61	3	Emphysema.	Pneumococcus and staphylococcus (N) (resistant to penicillin only).	
M.	62	14	Bilateral lobar pneumonia.		
F.	63	4	Congestive cardiac failure, rheumatic carditis.		
F.	65	2	Cerebro-vascular accident.		
F.	65	7	Bilateral basal pneumonia.		
M.	66	14	Congestive cardiac failure.	Coliform.	
F.	66	5	Cerebro-vascular accident.		
F.	67	7	Congestive cardiac failure.		
F.	67	90	Hypertension, congestive cardiac failure.		
M.	70	2	Congestive cardiac failure.	Pneumococcus.	
F.	70	7	Hypertension, congestive cardiac failure.		
F.	71	Not known.	Emphysema.	Pneumococcus.	
F.	71	3	Hypertension, congestive cardiac failure.		
F.	72	7	Atherosclerosis, granular kidneys, hypertrophied heart, cystic liver.		No pathogen isolated.
M.	73	10	Nephrosclerosis, vesical calculi with bilateral bronchopneumonia.	Pneumococcus.	Coliform.
M.	75	14	Bilateral pneumonia.		
M.	76	10	Bilateral pneumonia.		
M.	77	3	Auricular fibrillation, congestive cardiac failure, uræmia.		
M.	83	Not known.	Paget's disease, senility.		
F.	86	1	Congestive cardiac failure (bedridden), cerebro-vascular accident.	Staphylococcus (T) (N).	
M.	88	7	Lobar pneumonia.	Pneumococcus.	

"(V)"—Influenza virus isolated at post-mortem examination. Post-mortem examination was performed only in those cases annotated in the last column.

If tuberculosis appeared to be a possibility, streptomycin was omitted in favour of other antibiotics, pending elucidation of the diagnosis. (Active tuberculosis was found in only two of these patients.)

These forms of treatment proved effective and in no case did the result suggest a diminution of effect through antibiotic antagonism.

Duration of Treatment.

In general, antibiotics were required for at least seven days, and for some patients with persistent infection as a result of atelectasis, abscess formation or pleural effusion, this period was necessarily extended for several weeks. In these prolonged cases the antibiotics were changed to obviate undue selection of organisms, and when intramuscular injections became intolerable. The duration of treatment and the period of disability were prolonged for those patients with staphylococcal infections which caused pulmonary tissue destruction and empyema. Some of these patients have been left with symptomless pulmonary cysts or sterile abscess cavities which may require further treatment.

Deaths.

A total number of 38 deaths occurred amongst the patients described here. Four of these were precipitated by the virus infection uncomplicated by bacterial pneumonia, but in each case there was antecedent associated disease (Table II). Influenza virus was grown after death from the lungs of all four. The remaining 34 patients died as a result of pneumonia, and of these 19 had pre-existing chronic disease; 11 had congestive cardiac failure, two had cerebro-vascular accidents, two had nephrosclerosis, two had emphysema and one had Paget's disease. One patient who died with group A streptococcal infection had a pre-existing chronic staphylococcal empyema.

Two female patients, aged four and 36 years, whose pneumonia was due to group A streptococci, were found to have associated acute nephritis, which was confirmed by post-mortem examination. The child also had acute myocarditis. In one patient there was associated middle ear infection, pneumococcal meningitis and, subsequently, cavernous sinus thrombosis.

Severe pneumonia was primarily responsible for the remaining 12 deaths, two of which were due to staphylococcal infection in babies, two to combined pneumococcal and staphylococcal infection in men aged 55 years and 61 years, whilst the remainder were due probably to pneumococcal infection alone. The brief details of the patients who died are shown in Table III.

Staphylococcal infection appeared to be the sole factor in only two of these cases; it was associated with group A streptococcal infection in one case and with pneumococcal infection in two others, thus appearing to play a major part in only five deaths. The group A streptococcus appeared to be the principal agent in two deaths and occurred in combination with staphylococci in another case. Pneumococcal infection probably precipitated death in the remaining 27 cases.

Summary.

The influenza (Asian type A) epidemic, which provided large numbers of patients in a short period of time, demonstrated clearly some of the relatively infrequent, more severe effects of influenza virus infection.

These fell into three main diagnostic groups: uncomplicated influenza, obstructive laryngo-tracheo-bronchitis and pneumonia.

The large numbers of cases of laryngeal obstruction indicated that obstructive laryngo-tracheo-bronchitis is probably a fairly common manifestation of influenza virus infection in infants and young children. This was previously unsuspected.

The group of patients diagnosed as suffering from uncomplicated influenza showed a great variety of presenting symptoms.

Lumbar punctures in 31 patients with meningismus revealed normal cerebro-spinal fluid. No evidence was found of direct cerebral or meningeal involvement by the influenza virus.

The majority of patients with pneumonia were severely ill and represent at least a portion of the potential mortality in the absence of antibiotics, particularly penicillin. For each patient admitted to this hospital with pneumonia there were probably several patients treated successfully with antibiotics at home by general practitioners when the disease was in its early stages.

The pneumococcus was by far the most frequent cause of secondary pneumonia and was the major cause of death. The hæmolytic streptococcus group A was next in importance. The staphylococcus was the ætiological agent in 16 cases of pneumonia and was involved in five of 34 deaths (15%). In a few cases the period of disability was prolonged for some weeks by staphylococcal infection which caused lung destruction and empyema.

Deaths occurred mainly in patients with associated diseases, usually cardiac or renal. It was apparent that the influenza virus (Asian type A) infection could cause death in the absence of associated bacterial infection in occasional patients with preexisting diseases (Table II).

The principles underlying the use of antibiotics in these cases are discussed.

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THE CONTRIBUTION TO THE GENE MATERIAL OF THE POPULATION FROM THE MEDICAL USE OF IONIZING RADIATIONS.

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IN recent years the fear of the consequences of radioactive fallout from atomic explosions has stimulated increasing attention to the genetic consequences of exposure to ionizing radiations. Our information on the genetic effects of the exposure to ionizing radiation comes from the extensive work carried out on lower forms of life, and the extrapolation of this data for use with man is fraught with difficulties. In these circumstances it is only prudent to keep exposure of the gene material of the population to a minimum. The International Commission on Radiological Protection was constrained to state that information has indicated that, for the whole population, it would be prudent to limit the dose of radiation received by the gametes from all sources additional to the natural background to an amount of the order of magnitude of the natural background. In addition, there are recommendations for some limitation of the accumulated radiation dose received by those occupationally exposed up to the age of 30 years.

Investigations of the genetically significant dose received from the diagnostic use of X rays have been made in a number of countries, namely England and Wales (Osborn and Smith, 1956), United States of America (Billings *et alii*, 1955; Clarke, 1956), Denmark (Hammer-Jacobson, 1957) and Australia (Martin, 1955). Clarke also assesses the contribution from the use of radioactive materials and the therapeutic use of X rays in the United States of America.

This paper is an extension of the author's early work on the subject.

Contribution from the Diagnostic Use of X Rays.

The work of Martin (1955) is based on the assumption that the bulk of children in Australia are born before the parents reach the age of 30 years, and that on the average each individual in the population receives one X-ray examination before that age. The former assumption is borne out reasonably well by birth statistics (Table I), but the latter, as in other countries (Osborn, 1952; Osborn

and Smith, 1956), has proved to be a substantial underestimate. The contribution from diagnostic X rays has therefore been reassessed, using two methods.

Information from a number of diagnostic X-ray departments on the quantities of films of various sizes used together with the figures for the annual consumption of X-ray film in Australia lead to the finding that 4,600,000 X-ray examinations are carried out in Australia annually. This figure is in reasonable agreement with the similar figures for England and Wales, where 18,000,000 examinations are made annually (Osborn and Smith, 1956), the ratio of examinations to population being 0·48 in the case of Australia, and 0·41 for England and Wales. Thus on the average in a thirty-year span, some 15 X-ray examinations per person are made. The value obtained for the gonad dose is, of course, dependent among other things on the frequency of the various types of X-ray examination. Such distributions for a number of public hospitals are shown in Table II. In general there are no very marked differences; the values used in the calculations are those of hospital "A".

TABLE I.

Table Showing the Numbers of Male and Female Parents in Different Age Groups at the Time of the Birth of Their Children (1953-55).

Age of Parents.	Male Parents (Nuptial).	Female Parents (Total).
Under 14	—	104
15 to 19	3,640	34,450
20 to 24	84,792	171,233
25 to 29	186,756	194,277
30 to 34	151,598	125,054
35 to 39	85,441	60,650
40 to 44	44,933	18,299
45 to 49	16,755	1,105
50 to 54	5,031	—
55 to 59	1,261	—

The dose contributions to the gonads appropriate to the different types of X-ray examinations vary widely, and the author's own values (Martin, 1955) have been used as the average. This is thought to be justified since, with few exceptions, the values published in the literature (Osborn and Smith, 1956; Stanford and Vance, 1955; Hammer-Jacobson, 1957; Stanford, 1951; Ardran and Crookes, 1953; Barnett and Hewley, 1955) fall within the ranges shown (Table III). Use of this data leads to average doses per examination of 123 *mr* and 227 *mr* respectively for male and female. To these must be added allowances for exposures involving children when the gonad doses are higher, for screening examinations, for exposure of the fœtus in pregnancy examinations and for mass miniature surveys. Some 12% of X-ray examinations in Australia are on children, and the average dose involved is found to be about 300 *mr*. This value is in reasonable accordance with that of Billings *et alii* (1957). At first sight this figure may be expected to be higher, but the smaller distance of the gonads from the irradiated areas is partially offset by the smaller exposures involved. It is perhaps of interest that the average dose per exposure decreases from that for the age group 0 to two years, reaching a minimum at four to six years after which it rises gradually in each two year age group, until the adult value is reached. The distribution of parts examined in children differs somewhat from that for adults and from that for children as given by Billings *et alii*. A greater preponderance is found in examinations of the chest and extremities of children than for adults. These examinations give little radiation to the gonads, and the average dose per examination thus tends to be lowered (Table IV). Screening examinations vary between 2% and 10% of the total examinations made in Australian hospitals (the value of 5% has been used here), while obstetrical examinations amount to about 1% of all examinations. Approximately 25% of the Australian population above the age of 14 years is examined annually in mass miniature surveys. Allowances for these bring the average dose per examination up to 250 *mr* and 365 *mr* for males and females respectively. On the basis of an average of 15 examinations before the age of 30 years, this leads to a contribution to the gonads of just under 150% of the natural background.

The other approach has been a modification of the method used by Osborn and Smith (1956), in which the dose received by a person at a given age is multiplied by the probable number of children to be subsequently conceived by the person (the "risk of subsequent parenthood"). This method of calculation, which takes into account the age distribution of those persons presenting for X-ray examination, indicates a contribution of 1,525,000*r* equivalent genetic dose per annum, some 160% of the background, a figure in close agreement with the other method of calculation. It is considered that this figure of around 160% of the natural background represents the likely state of affairs at present, since average values for the dose per examination have been used.

TABLE II

Percentage Distribution of X-Ray Examinations in a Number of Australian Hospitals.

Type or Site of Examination.	Hospitals.								
	A.		B.		C.	D.	E.		F.
	Male.	Female.	Male.	Female.	Male and Female.	Male and Female.	Male.	Female.	Female.
Extremities	26·8	17·5	30·6	15·9	17·9	33·0	26·9	20·3	4·2
Skull *et cetera*	12·6	12·4	7·8	6·9	5·3	9·0	7·9	5·7	2·6
Chest	20·8	29·1	29·6	36·8	55·4	25·8	44·0	42·6	70·0
Pelvis, including pregnancies	2·6	2·8	2·4	1·4	6·4	5·6	2·6	6·6	5·1
Hips	2·7	3·2	1·9	3·3					
Lumbo-sacral joint	4·5	3·4	5·5	5·2					2·6
Dorsal vertebræ	2·4	2·1	0·8	0·6	2·6	10·7			0·7
Cervical vertebræ	1·5	1·7	2·2	3·5			5·1	4·9	0·5
Ribs	0·5	0·8	1·5	0·6	—	—			0·3
Shoulders	2·4	1·5	2·8	2·1	2·5	—	—	—	—
Urinary tract	5·5	4·9	0·3	0·5	—	3·3	2·1	3·1	0·7
Cholecystography	1·4	4·6	—	0·5	1·2	2·3	0·8	2·8	1·4
Abdomen	8·3	5·4	1·0	3·7	4·0	—	1·4	2·3	1·3
Barium meals and enemas ..	2·5	2·4	9·9	8·2	3·0	7·4	7·1	7·6	4·6
Intravenous pyelography ..	2·3	2·3	1·1	3·0	1·0	2·0	—	—	2·8
Retrograde pyelography ..	0·4	0·5	—	0·1	0·6	0·3	—	—	0·4
Gall-bladder area	1·9	4·6	2·5	7·1	—	—	—	—	2·0
Bladder	0·6	0·3	0·1	—	—	—	—	—	—
Kidney	0·2	0·2	0·2	0·1	—	—	—	—	—
Liver	0·1	0·1	—	0·1	—	—	—	—	—
Dental	—	—	—	—	0·3	—	2·3	4·1	0·1
Salpingography	—	0·2	—	0·1	—	—	—	—	0·6
Others	—	—	—	—	—	0·4	—	—	—

Substantial reduction in the doses involved in many of these examinations can be effected by manipulation of the technical factors involved or by direct protection where possible (Martin, 1957). Tables V and VI list the actual and percentage contributions from the various examinations using the average values for exposure and the minimum values of the dose involved, the latter having been taken from data in the literature (Osborn and Smith, 1956; Stanford and Vance, 1955; Hammer-Jacobson, 1957; Billings, Norman and Greenfield, 1957; Ardran and Crookes, 1953).

TABLE III.
Dose per Film to Gonads.

Type or Site of Examination.	Range. (Milliröntgens.)		Mean Value. (Milliröntgens.)	
	Testes.	Ovaries.	Testes.	Ovaries.
Skull *et cetera*	0·036 to 0·96	0·013 to 0·4	0·06	0·3
Chest	0·07 to 1·6	0·3 to 8·9	0·3	2
Pelvis:				
Antero-posterior	140 to 2600	50 to 700	600	300
Lateral	—	1400 to 1700	—	—
Pregnancy	—	180 to 3500	—	1500
Pregnancy	400 to 6000 (Fœtal gonads)	—	—	—
Pregnancy	2000 to 30,000 (Fœtal gonads, vertex presentation)	—	—	—
Gastro-intestinal tract	—	10 to 1100	—	150
Lumbar spine:				
Antero-posterior	4 to 9·5	20 to 160	5	50
Lateral	20 to 36	60 to 300	28	150
Lumbo-sacral joint:				
Antero-posterior	—	84 to 152	—	90
Lateral	30	300 to 4100	30	500
Gall-bladder	—	20 to 60	—	50
Cholecystography	3	50 to 160	3	90
Kidney	2 to 5	6 to 100	2·5	30
Bladder	—	150	—	—
Excretion pyelography	100 to 300	32 to 500	140	250
Salpingography	—	25,000 (Total)	—	—

Use of these minimum values reduces the gonad dose contribution to about 30% of the natural background, and this probably represents the best that can be achieved at present by careful selection of the technical factors. The corresponding value for England and Wales is given by Osborn and Smith as 22% of the natural background. It will be seen from the tables that the relative contributions of the various examinations alter substantially between one set of conditions and another. It follows that any further reduction of the dose contribution to the gene material of the population must be obtained by reduction of the number of examinations made, or in the number of films per examination. Therefore, with some concern it is found that in a recent five-year period the number of X-ray exposures performed in Australia has increased by about 50%, while at the same time the population has only increased by 17%. Were this trend to continue it is obvious that any reduction effected by a change of technical factors would, over a period of time, be offset by an increase in the number of examinations. The increased number of X-ray exposures has arisen from an increase in the number of films per examination, as well as an increase in the number of examinations themselves, and Table VII shows the average number of films per examination used annually over a period of years by a number of public hospitals in Australia.

From Tables V and VI it will be seen that for males, using the average values for dose received, 80% of the contribution comes from four types of examination, while chest radiography, despite the large number of people involved, contributes less than 0·1%. When minimum dose values are used, the distribution of the contributions is altered, considerable reductions being effected in examinations in which the gonads are near the field of irradiation, but not in it, and so can be protected directly, e.g. the stomach. Chest radiography again represents a very small fraction of the total dose involved.

Comparative distributions of the contribution in various countries are shown in Table VIII, the average dose values having been used for the Australian figures.

Contribution from Therapy Procedures.

To compute the genetically significant contribution from the therapeutic and dermatological use of X rays in Australia, information on the number of patients treated annually was obtained by questionnaire and from the users of X-ray equipment. In the questionnaire the patients were entered under age groups and under the rough classification of site, namely the head and neck, the trunk above the waist, the trunk below the waist, the upper leg, the lower leg, the arms and extremities.

TABLE IV.
Percentage Distribution of 16,400 Examinations According to Age in a Children's Hospital.

Type or Site of Examination.	Percentage in Age Groups (Years).						
	0 to 2.	2 to 4.	4 to 6.	6 to 8.	8 to 10.	10 to 14.	Total Percentage.[1]
Hands, feet and arms	2·12	2·88	3·13	5·4	4·96	7·48	26·2
Thigh and knee	0·57	1·04	1·01	0·95	0·86	0·92	5·4
Skull *et cetera*	2·58	1·74	1·76	1·57	1·04	1·94	10·7
Cervical vertebræ	0·24	0·09	0·07	0·18	0·06	0·22	0·9
Dorsal vertebræ	0·18	0·20	0·18	0·13	0·18	0·27	0·2
Shoulders	0·29	0·46	0·44	0·22	0·18	0·33	1·9
Lumbo-sacral joint	0·27	0·09	0·15	0·11	0·18	0·27	1·2
Pelvis	0·30	0·22	0·22	0·24	0·38	0·26	1·6
Hip	1·13	1·55	1·02	0·90	0·79	0·88	6·4
Abdomen	0·75	0·44	0·44	0·49	0·46	0·42	3·0
Intravenous pyelography	0·24	0·02	0·06	0·06	0·16	0·29	0·8
Chest	9·2	5·66	5·63	7·00	4·94	4·81	37·4
Urinary tract	0·06	0·07	0·02	0·02	0·04	0·09	0·3
Bladder	—	—	—	—	—	—	—
Kidney	—	—	—	0·02	0·02	0·07	0·1
Liver	0·04	—	0·02	0·02	0·04	0·04	0·2
Cholecystography	—	0·02	0·04	—	—	0·04	0·1
Gall-bladder	—	—	—	—	—	—	—
Barium meal and enema	0·95	0·33	0·24	0·29	0·22	0·2	2·3
Ribs	0·02	0·05	—	0·04	—	0·11	0·2
Retrograde pyelography	0·06	0·05	0·02	0·06	0·04	0·09	0·3
Dental	0·04	0·02	0·13	0·09	0·22	0·26	0·8
Total	19·0	14·9	14·6	17·8	14·8	18·9	—

[1] Males formed 58% of the total, females 42%.

TABLE V.

Females: Gonad Dose Contributions from Diagnostic X-Ray Examinations.

Type or Site of Examination.	Cases *per Annum*.		Gonad Dose *per Annum*, Average Value.[1]		Gonad Dose *per Annum*, Minimum Value.[2]	
	Number.	Percentage.	Röntgens.	Percentage of Total.	Röntgens.	Percentage of Total.
Extremities	1312	17·5	1·3	0·08	0·03	—
Skull *et cetera*	932	12·4	0·9	0·06	0·15	0·04
Chest	2184	29·1	5·3	0·31	0·05	0·01
Pelvis	208	2·8	166·6	9·7	26·6	6·2
Cervical vertebræ	124	1·7	0·1	0·01	0·37	0·01
Hips	240	3·2	105·5	6·2	30·6	7·2
Shoulders	108	1·5	0·4	0·03	0·05	—
Salpingography	16	0·2	400·0	23·4	10·4	2·44
Urinary tract	368	4·9	74·6	4·4	90·5	21·3
Cholecystography	344	4·6	130·0	7·6	5·36	1·26
Lumbo-sacral joint	256	3·4	262·0	15·3	94·5	22·3
tomach	416	5·4	150·0	8·8	74·8	17·5
Barium enema	180	2·4	93·5	5·5	10·8	2·5
Intravenous pyelography	172	2·3	234·0	13·7	63·6	14·9
Ribs	56	0·8	0·2	0·01	0·02	—
Dorsal vertebræ	156	2·1	19·3	1·1	0·43	0·06
Gall-bladder	348	4·6	24·4	1·4	2·53	0·59
Retrograde pyelography	36	0·5	28·8	1·7	10·66	2·5
Bladder	20	0·3	4·2	0·2	4·2	0·98
Kidney	12	0·2	0·7	0·4	0·07	0·17
Liver	8	0·1	0·2	0·1	0·16	0·04

[1] Average dose per examination, 227 *mr*.
[2] Average dose per examination, 57 *mr*.

TABLE VI.

Males: Gonad Dose Contributions from Diagnostic X-Ray Examinations.

Type or Site of Examination.	Cases *per Annum*.		Gonad Dose *per Annum*, Average Value.[1]		Gonad Dose *per Annum*, Minimum Value.[2]	
	Number.	Percentage.	Röntgens.	Percentage of Total.	Röntgens.	Percentage of Total.
Extremities	2256	26·8	4·7	0·5	0·14	0·09
Skull *et cetera*	1062	12·6	0·2	0·02	0·21	0·14
Chest	1750	20·8	0·7	0·07	0·02	0·01
Pelvis	216	2·6	233·0	22·7	7·8	5·3
Cervical vertebræ	128	1·5	0·2	0·02	2·2	1·58
Hips	228	2·7	201·0	19·5	25·3	17·2
Shoulders	196	2·4	0·1	0·01	0·08	0·05
Urinary tract	460	5·5	50·5	4·9	50·6	34·5
Cholecystography	120	1·4	1·6	0·15	0·22	0·15
Lumbo-sacral joint	380	4·5	30·8	3·0	18·5	12·5
Stomach	696	8·3	325·0	31·6	0·91	0·62
Intestinal tract	212	2·5	27·6	2·7	26·3	17·9
Intravenous pyelography	188	2·3	111·0	10·8	0·4	0·27
Ribs	40	0·5	0·03	—	0·04	0·03
Dorsal vertebræ	200	2·4	3·4	0·3	0·46	0·3
Gall-bladder	156	1·9	0·4	0·04	0·13	0·09
Retrograde pyelography	36	0·4	25·2	2·5	1·04	0·71
Bladder	52	0·6	12·5	1·2	12·5	8·5
Kidney	16	0·2	0·06	—	0·06	0·04
Liver	12	0·1	0·02	—	0·02	0·02

[1] Average dose per examination, 123 *mr*.
[2] Average dose per examination, 17·5 *mr*.

For the calculations the following conditions were taken as average. In superficial therapy the area treated was considered to be 10 square centimetres, while in malignant and pre-malignant conditions the dose considered to have been delivered was 4000*r*, and in benign conditions it was 1000*r*. For deep therapy the dose considered for non-malignant conditions was 1200*r*, and for malignant conditions it was 4500*r*, while the average area treated was taken as 100 square centimetres. In superficial X-ray treat-

TABLE VII.

Number of Films per Examination Used in Various Hospitals.

Hospital.	1950.	1951.	1952.	1953.	1954.	1955.
A	1·76	1·95	2·06	2·19	2·31	2·41
B	3·19	3·07	3·12	2·83	3·42	4·56
C	—	2·76	2·63	2·38	2·37	2·4
D	—	1·95	1·95	2·06	2·18	2·43
E	—	1·8	1·8	2·02	2·24	2·5
F	—	1·99	1·8	2·04	2·09	2·24
G	—	2·83	2·76	2·84	3·03	3·1

TABLE VIII.

Percentage Contribution to Genetically Significant Radiation Dosage of Some X-Ray Examinations.

Site or Type of Examination.	Australia.		England and Wales.		Denmark.	
Fœtus	17·0		26·3		18·1	
	Male.	Female.	Male.	Female.	Male.	Female.
Extremities	0·1	—	0·1	—	—	—
Chest	—	0·1	0·3	—	—	—
Chest M.M.	0·2	0·2	—	—	0·1	0·1
Abdomen, pelvis *et cetera*, including obstetrics	10·8	6·9	8·5	9·3	5·1	8·1
Barium meal	0·5	2·1	0·6	0·1	—	—
Barium enema			0·2	0·1	—	—
Cholecystography	—	2·8	—	—	8·3	—
Pyelography	2·6	5·7	3·0	10·7	24·2	10·7
Urinary tract	1·0	1·6	0·1	0·4	6·1	—
Hip and femur	3·9	2·3	19·2	3·8	8·0	—
Leg and foot	—	—	0·4	—	—	—
Spine	0·7	6·1	2·7	10·9	1·6	2·7
Salpingography	—	8·7	—	1·1	—	—

TABLE IX.

Contributions to the Gonad Dose from Therapeutic and Diagnostic Radiology.

Source.	Condition.	Sex.	Leakage Radiation.		Scatter Radiation.		Total.		Percentage of Total Medical Radiation.
			REG.[1]	Percentage of Total.	REG.	Percentage of Total.	REG.	Percentage of Total.	
Therapeutic Radiology.									
Deep X-ray therapy	Non-malignant.	Female ..	327	3·5	21,470	10·1	21,797	8·2	1·3
		Male	380	4·0	1,578	0·7	1,958	0·7	
Deep X-ray therapy	Malignant.	Female ..	930	9·9	1,390	0·7	2,320	0·9	0·5
		Male	1,138	12·0	4,737	2·2	5,875	2·2	
Superficial X-ray therapy.	Non-malignant.	Female ..	573	6·1	27,434	12·9	28,007	10·6	1·6
		Male	586	6·2	331	0·2	917	0·3	
Superficial X-ray therapy.	Malignant.	Female ..	2,595	27·3	154,950	72·5	157,545	59·5	9·1
		Male	2,928	31·0	1,564	0·7	4,492	1·9	
Radium and radon	Non-malignant.	——	—	—	—	—	19,060	7·2	2·3
Radium and radon	Malignant.	——	—	—	—	—	22,633	8·5	
Total ..	.. .. ..	.. .. ..	9,457	100·0	213,454	100·0	265,104	100·0	—
Diagnostic Radiology.									
X-rays.	——	Female ..	—	—	—	—	850,000	—	85·2
		Male	—	—	—	—	675,000		
Total medical use	.. .. ..	.. .. ..	—	—	—	—	1,399,604	—	100·0

[1] REG (Röntgen equivalent genetic) is the dose received at a given age multiplied by the risk of subsequent parenthood.

ments of the lower trunk in females, it was assumed that one ovary was within the field in 50% of cases, while in deep therapy sterilization was assumed to result in all cases.

When the gonads were contained in the field of irradiation the dose delivered could be obtained from surface dose and depth dose data. When they were outside the field of irradiation the dose reaching them was computed from the scatter data of Martin and Evans (1957), allowance also being made for the leakage radiation through the housing of the X-ray tube based on the data supplied by these authors.

In computing the contribution to the gene material of the population use was again made of the method depending on the dose delivered in relation to the risk of subsequent parenthood. In the case of malignant conditions, the appropriate survival rates (Central Cancer Registry, 1957) were used, it being assumed, since no data were available, that the prospects of parenthood of those surviving were not impaired by the treatment. This probably somewhat over-estimates the contribution. The resultant contribution is divided to show that due to radiation scattered to the gonads and that due to leakage radiation from the tube housing (Table IX).

Over 100,000 millicuries of radon are used annually for medical purposes in Australia (Commonwealth X-ray and Radium Laboratory, Reports 1950 to 1957), of which quantity it is estimated that rather less than half is used for intrauterine work and in β-ray devices. For the remainder, the distribution of treatments in age groups and in sites for superficial therapy has been assumed. The quantities of radioactive isotopes used in Australia are small, some eight curies of ^{131}I and one curie of ^{32}P being the consumption in 1956-57, and the genetic dose from this source is estimated at less than 1% of the total contribution.

It will be seen that the contribution for therapeutic procedures is between one fifth and one sixth of that due to the diagnostic use of X rays. This figure is in reasonable accordance with the estimate of one seventh made by Clarke (1956) for American conditions, bearing in mind that Clarke makes no allowance for any contribution due to treatments for malignant conditions, while the author's calculations assume that the survivors of treatments for malignant conditions enjoy the same prospect of subsequent parenthood as the normal population.

No one in possession of the facts concerning the genetic consequences of the exposure to ionizing radiation can view the situation presented above with equanimity, and every effort should be made to reduce the contribution which the medical use of these radiations involves. As shown in Table X, this source represents by far the largest of the man-made contributions. It is evident that much can be effected by technical changes, but a great deal more can be achieved by exercising stricter criteria on the necessity for the use of X rays for diagnostic purposes and for the treatment of non-malignant conditions (Martin, 1957).

TABLE X.

Dose of Radiation to the Gonads Derived from Various Sources in Thirty Years.

Source.	Dose. (Millirems.)	Percentage of Total.
Natural radiations	3000	31·1
Body radiations	1000	10·4
Occupational exposure	20	0·2
Diagnostic X rays	4760	49·5
Therapeutic radiations	880	8·6
Luminous watches	23	0·2

Summary.

The paper computes the radiation dose to the gene material of the population from the medical use of ionizing radiations. It also shows that the diagnostic use accounts for the largest of the man-made contributions, with the therapeutic applications the second largest contribution; the former is some six times greater than the latter.

Acknowledgements.

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SERUM CHOLESTEROL LEVELS IN ATHEROSCLEROTIC SUBJECTS AND IN THE AUSTRALIAN ABORIGINES.[1]

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ELEVATIONS of serum cholesterol levels have been considered by many workers to be of pathogenic significance in atherosclerosis. There is no doubt that a high and maintained serum cholesterol level bears a causal relationship to the severity of atherosclerosis in rabbits (Day and Wilkinson, 1956). However, the role of hypercholesterolæmia as a causal mechanism in human atherosclerosis is the centre of widespread controversy. Some of the earlier studies designed to show elevations of the serum cholesterol levels in human atherosclerosis (Davis *et alii*, 1937; Steiner and Domanski, 1943) have overlooked the important effect of aging in causing an elevation in the serum cholesterol levels of humans. By their comparison of the cholesterol levels of atherosclerotic patients with those of controls of a much lower mean age, their results, which are considered to show elevation in atherosclerosis, are thus invalidated. Lande and Sperry (1936) conclude that the incidence and severity of atherosclerosis in humans are not directly affected by the serum cholesterol levels, while Paterson *et alii* (1956) have recently shown that there is no relationship between the total serum cholesterol levels and the degree of atheroma seen at autopsy. However, these latter workers do concede that elevations of the cholesterol-phospholipid ratio and the S_f 0 to 12 lipoproteins are suggestive of an atherogenic effect, but the elevations are inconsistent. In contrast to these findings, it has since been shown by the "Report of a Cooperative Study of Lipoproteins and Atherosclerosis" (1956) that there was a group elevation of total serum cholesterol levels and of the S_f 20 to 100 lipoprotein levels in subjects in whom clinical manifestations of atherosclerosis subsequently developed. However, in this comprehensive work it is concluded that lipid measures will not permit a useful clinical prediction for the subsequent development of atherosclerosis in any individual. Some workers have shown definite elevations in the serum cholesterol levels of patients with atherosclerosis (Lawry *et alii*, 1957; Biörck *et alii*, 1957). There are many other conflicting reports on the role of hypercholesterolæmia in atherogenesis in humans, and this matter obviously needs considerable clarification.

Because elevated cholesterol levels are considered by some to play a part in human atherogenesis, many workers have devoted considerable attention to those factors controlling the serum cholesterol levels in man. Numerous ethnic and dietary surveys are therefore relevant to this field of research. Certain ethnic groups with a low incidence of atherosclerosis and with low serum cholesterol levels have been studied (Walker and Arvidsson, 1954; Bronte-Stewart *et alii*, 1955; Mann *et alii*, 1955*a*, 1955*b*; Page *et alii*, 1956; Keys *et alii*, 1955). The low serum cholesterol levels in these ethnic groups have been attributed to their low dietary intakes of animal fat. Recently Schwartz *et alii* (1957) have demonstrated that the low serum cholesterol level of the Australian aborigines is probably a result of their low intake of saturated fat.

In this paper the serum cholesterol levels of atherosclerotic subjects are reported, together with the cholesterol levels of primitive nomadic tribal aborigines and of aborigines who have been urbanized. Part of the material for this investigation was collected in August, 1957, during the course of an anthropological expedition to central Australia.

Methods.

In the first study, 35 European males with both clinical and electrocardiographic evidence of myocardial ischæmia were investigated. These were compared with 26 normal, healthy males, in whom there was no clinical or electrocardiographic evidence of myocardial ischæmia, or any other clinical evidence of atherosclerosis. The subjects of both these groups were of comparable age, and none had any disorder known to affect the serum cholesterol levels. The third group of subjects investigated consisted of healthy young male medical students, of European descent, who also had no conditions known to affect the serum cholesterol levels. The mean age of this last group (25 years) was approximately half that of either of the other groups.

In the second study, three groups of subjects were investigated Within the first group there were 24 male nomadic tribal full-blooded Pintubis, living in the western desert of central Australia. The mean age for this group was 32 years. The second group of aborigines consisted of 26 full-blooded subjects, living in the vicinity of Alice Springs, who had been "urbanized" for five years or more, having partly acquired the living and dietary habits of white Australians. The mean age of this latter group was 37 years. Within the third group there were 38 normal healthy males, of European descent, of varying ages (mean 35 years), who had no clinical or electrocardiographic evidence of myocardial ischæmia, and also no evidence of diseases known to affect the serum cholesterol levels.

Venous blood samples were collected in all cases, refrigerated and centrifuged at 3000 revolutions per minute for 10 minutes, and the serum was separated. The aboriginal sera, after refrigeration in vacuum flasks, were flown to the laboratory where the serum cholesterol levels were determined.

Serum cholesterol levels were determined according to the method of Zlatkis *et alii* (1953), with modifications to suit this laboratory, as described in a previous communication (Day *et alii*, 1956).

Diet was assessed during a previous study and is reported in a prior communication (Schwartz *et alii*, 1957). In addition, the

[1] Part of the material for this work was collected by an anthropological expedition from the University of Adelaide, financed largely by the Wenner-Gren Foundation for Anthropological Research Incorporated, New York, and by the University of Adelaide.

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TABLE I.

The Distribution of Cholesterol Values in Atherosclerotic Patients, Age Controls and Young Controls.

Group.	Number of Cases.	Total Serum Cholesterol Level. (Milligrammes per 100 Millilitres.)							
		100 to 150.	151 to 200.	201 to 250.	251 to 300.	301 to 350.	351 to 400.	401 to 450.	451 to 500.
Atherosclerotic	35	1	3	3	9	13	4	1	1
Age controls	26	0	2	4	7	6	5	2	0
Young controls	28	0	2	13	8	4	1	0	0

fat intake of the urban group of aborigines was assessed as being intermediate between that of the Pintubis and the white controls.

Results.

From Tables I and II it can be seen that in the group of atherosclerotic subjects investigated in this study there is no significant elevation of the total serum cholesterol levels associated with this disorder. In both groups the mean levels of serum cholesterol are remarkably similar, being 301·1 milligrammes per 100 millilitres in the case of atherosclerotic patients, and 301·6 milligrammes per 100 millilitres in the case of the control group of subjects of similar age and without evidence of atherosclerosis. However, a considerable elevation in the mean cholesterol

TABLE II.

Mean Total Serum Cholesterol Values in Atherosclerotic Patients, Age Controls and Young Controls, together with the Percentage of Cases with Cholesterol Levels in Excess of 300 Milligrammes per 100 Millilitres.

Group.	Number of Subjects in Groups.	Percentage of Patients with Cholesterol Levels in Excess of 300 Milligrammes per 100 Millilitres.	Mean Serum Cholesterol Levels. (Milligrammes per 100 Millilitres.)[1]
Atherosclerotic ..	35	54·3	301·1 (±9·48)
Age controls	26	50·0	301·6 (±13·86)
Young controls ..	28	17·9	252·8 (±11·31)

[1] Estimated standard error of mean in parentheses.

levels with aging is to be noted, the level for the young controls being only 252·8 milligrammes per 100 millilitres. It can further be seen from Table II that the percentage of subjects with levels of serum cholesterol in excess of 300 milligrammes per 100 millilitres is approximately the same in the atherosclerotic and the age control groups, while this value is much lower in the young control group. In Table III the data from the anthropological

TABLE III.

The Mean Serum Cholesterol Levels of Aborigines and of White Control Subjects.

Group.	Number of Individuals.	Mean Age in Years.	Serum Cholesterol Levels. (Milligrammes per 100 Millilitres.)[1]
Nomadic Pintubis ..	24	32	211·7 (±4·35)
"Urban" aborigines	26	37	242·7 (±7·53)
White controls ..	38	35	293·8 (±9·83)

[1] Estimated standard error of mean in parentheses.

investigation are summarized. The three groups for comparison are of comparable ages. It is apparent that the mean cholesterol level of the nomadic tribal Pintubis is considerably lower than the mean levels of either the urban aborigines on the one hand, or of the white Australian controls on the other. Furthermore, the mean level of the urban group of aborigines is also considerably lower than the mean level of the white controls. These differences are highly significant ($P<0·001$).

Discussion.

In this investigation it has been shown that there is no significant elevation of the total serum cholesterol levels in a group of atherosclerotic subjects when their levels are compared with those of a group of non-atherosclerotic controls of comparable age. These findings are consistent with the results of other workers (Lande and Sperry, 1936; Paterson *et alii*, 1956), but contrast with the results obtained by Lawry *et alii* (1957) and by Biörck *et alii* (1957). No explanation for these discrepancies can be given. However, conflicting results such as these certainly cast doubt upon hypercholesterolæmia as the primary causal mechanism in atherosclerosis. It is possible that, as atherosclerotic disease is endemic in this country, many of the control group have this disorder, though there are no apparent external manifestations. If this is so then only a small difference in cholesterol levels may be expected. Such a possibility cannot be excluded, but the controls were selected with great care and after careful clinical examination. We therefore consider that the results of this investigation demonstrate the absence of hypercholesterolæmia in the atherosclerotic group. Furthermore, it should be noted from Table I that there is little difference between the two groups in the distribution of individual cholesterol values. Whereas 50% of the non-atherosclerotic age controls have serum cholesterol levels in excess of 300 milligrammes per 100 millilitres, only 54·3% of the patients with atherosclerotic heart disease have levels in excess of this value, while the mean values for each group are the same (Table I). It can further be seen that some of the atherosclerotic subjects are either normo-cholesterolæmic or hypocholesterolæmic. In other words, not all cases of atherosclerosis are associated with an elevation of the serum cholesterol levels. If hypercholesterolæmia is the prime causal mechanism of human atherosclerosis, one might expect that the lipid abnormality would be universally present in every individual examined. This is not so, and we are therefore forced to question the role of hypercholesterolæmia in human atherosclerosis. Perhaps the most significant work in recent years on the role of deranged lipid metabolism in atherosclerosis is the American "Report of a Cooperative Study of Lipoproteins and Atherosclerosis" (1956). These workers conclude: "If there is a defect of lipid metabolism in coronary heart disease, why has this study demonstrated such a low association between elevated lipid levels and subsequent clinical events?"

The effect of aging on the serum cholesterol levels in humans has been well demonstrated (Keys *et alii*, 1956; Schwartz *et alii*, 1957). In this present work, such an increase in the serum cholesterol levels in male subjects with aging is apparent. This can be readily seen in Table II. This increase due to age makes it essential to compare groups of comparable age when studying serum cholesterol levels in atherosclerosis. Two reports purporting to show elevations in the serum cholesterol levels in atherosclerosis both overlooked this important effect of aging, and the difference reported could easily be accounted for on the basis of age difference alone (Davis *et alii*, 1937; Steiner and Domanski, 1943). The cause of this aging increase in serum cholesterol levels in humans needs much more investigation. Such an aging increase does not occur in aboriginal males (Schwartz *et alii*, 1957).

It has already been demonstrated that the primitive Australian aboriginal has a lower serum cholesterol level than white Australians of comparable age (Schwartz *et alii*, 1957), and that the difference is probably due to the low dietary intake of animal fats by that group. In this present investigation the serum cholesterol levels of two groups of full-blooded aborigines subsisting on different dietary fat intakes are reported and compared with the levels of a group of healthy white Australians (Table III).

The tribal nomadic Pintubis receive somewhat less than one-third of the animal fats that are eaten by white Australians, while the "urban" group of aborigines receive a fat intake intermediate between these two groups. From Table III it can be seen that the mean cholesterol levels of both aboriginal groups are lower than the mean level of the white control group.

Furthermore, the mean level of the nomadic group is considerably lower than that of the "urban" group. These differences are all highly significant ($P<0{\cdot}001$). It is likely that these cholesterol levels reflect the different fat intakes of the three groups. This conclusion is supported by the findings of other workers. Recently, Beveridge *et alii* (1956) have demonstrated that animal fats are capable of elevating the serum cholesterol levels in man, while vegetable fats produce a depression of the levels. Essentially similar results are reported by Ahrens *et alii* (1957), who have shown that the hypercholesterolæmic effect of dietary fats in man is dependent upon the level of saturation, as measured by the iodine number.

Similar ethnic studies on different racial groups have all shown that there is a correlation between the dietary fat intake on one hand and the serum cholesterol level on the other (Walker and Arvidsson, 1954; Bronte-Stewart *et alii*, 1954; Mann *et alii*, 1955*a*; Mann *et alii*, 1955*b*; Page *et alii*, 1956; Keys *et alii*, 1955). Thus there is little doubt that both the quantity and quality of ingested fats are of significance in controlling the serum cholesterol levels in man. In many of these studies it has been suggested that the lower serum cholesterol levels reported are causally associated with a lower incidence of atherosclerotic disease. Such a low incidence of atherosclerosis has also been reported in the case of the Australian aborigines (Schwartz and Casley-Smith, 1958). However, to infer a causal relationship on the basis of a statistical correlation between two variables is very dangerous. Such a danger in ethnic studies has recently been stressed by Weiss and Mattil (1957), who, by a careful analysis of correlation coefficient values, have shown that several divergent hypotheses may be proved in this manner. Extreme caution is necessary in interpreting these and allied data, particularly in view of the uncertain role of hypercholesterolæmia in human atherogenesis.

Summary.

1. It has been shown that in atherosclerotic subjects there is no significant elevation of the serum cholesterol levels, but that a considerable elevation occurs in males with aging. The former findings do not support the view that hypercholesterolæmia is of primary significance in human atherogenesis.

2. The mean serum cholesterol level of the Australian aborigines has been shown to be significantly lower than the mean level for controls of European descent.

3. The levels in tribal nomadic aborigines and urban aborigines show a striking correlation with the levels of dietary fat intake in these groups. It is concluded that the serum cholesterol level of the Australian aborigines is lower than that of the white controls because of the lower intake of animal fat. However, this low level of cholesterol is not suggested as the reason for the lower incidence of atherosclerosis in this ethnic group.

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PARTIAL GASTRECTOMY IN PATIENTS OVER SEVENTY YEARS OF AGE.

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PEPTIC ULCER is most common in middle age, but is not confined to it. All physicians and surgeons of experience are familiar with a peculiarly intractable type of gastric ulceration which occurs in the elderly and is no doubt related to arteriosclerosis. "Acute" ulcers may be found with or without chronic lesions and are probably part of a chronic disability; bleeding from the small arteriosclerotic vessels may be quite uncontrollable medically. Duodenal ulcers are relatively less common at this age, but it is a grave mistake to regard pyloric stenosis in the elderly as necessarily due to "burnt-out" disease (see Table I).

Doctors often hesitate to recommend partial gastrectomy for these older people, however clearly it may be indicated, in spite of the simple fact that it is still the best treatment for ulcers not healed by medical means. Davey and O'Donnell (1956) have shown that the elective operation is safe in the aged, and I believe my few cases support their views. In an emergency the dangers are greater—the mortality for emergency major operations in patients over 60 years of age was 17·1% in Cole's (1953) survey of the literature—but one should remember that the alternative is death; at no other age is prolonged illness in bed, and particularly recurrent severe hæmorrhage, so lethal.

Material.

Kinsella, at St. Vincent's Hospital, Sydney, has recently (1956) reported his own exemplary series of 268 gastrectomies for ulcer. Of these patients only 12 were over 70 years of age, the eldest being aged 77 years. In my own much smaller series of 155 partial gastrectomies for ulcer 23 patients have been aged from 70 to 84 years (average age 75·8); 13 operations were emergency procedures and two (15·4%) of these patients died. All 10 patients who had had elective procedures left hospital alive and able to eat normally, though one died a few weeks later of another condition. None of these deaths was due to technical failure. Most of the operations were performed at Leicester (England); the remainder were performed at Melbourne.

TABLE I.

The Results in a Series of 23 Gastrectomies in Aged Patients.

Case Number.[1]	Sex.	Age in Years.	Length of History.	Presenting Complications.[2]	Operative Findings.	Post-Operative Complications.	Result.
1	M.	80	5 years.	——	Penetrating chronic gastric ulcer.	——	Home well.
2	M.	84	Many years.	Stenosis.	Active chronic duodenal ulcer and stenosis.	Retention of urine.	Home well; readmitted to hospital and died (uræmia).
3	F.	70	Many years.	——	Chronic gastric ulcer.	Paralytic ileus.	Home well.
4	M.	76	18 months.	——	Chronic duodenal ulcer.	Retention of urine.	Home well; later found to have carcinoma of bronchus.
5	M.	73	30 years.	Stomal ulcer following gastro-enterostomy.	Stomal ulcer.	——	Home well.
6	F.	80	Years.	——	Two chronic gastric ulcers.	——	Home well.
7	M.	70	31 years.	——	Two active chronic duodenal ulcers and stenosis.	——	Home well.
8	M.	74	40 years.	Recent bleeding and stenosis.	Active chronic duodenal ulcer and stenosis.	——	Home well.
9	M.	75	3 months.	Stenosis.	Active penetrating chronic duodenal ulcer and stenosis.	——	Home well.
10	M.	73	3 years.	Recent bleeding and hour-glass stenosis.	Active chronic gastric ulcer and hour-glass stenosis.	——	Home well.
11	M.	72	Years.	Two severe hæmorrhages.	Chronic gastric ulcer.	——	Home well.
12	F.	83	6 years.	Two severe hæmorrhages.	Chronic gastric ulcer and chronic duodenal ulcer.	Chronic congestive cardiac failure.	Home well.
13	M.	77	1 year.	Three severe hæmorrhages.	Chronic duodenal ulcer.	Pulmonary embolism.	Died on first post-operational day.
14	M.	76	1 year.	Three severe hæmorrhages.	Acute gastric ulcer.	——	Home well.
15	F.	75	Many years.	One severe hæmorrhage.	Chronic gastric ulcer and acute gastric ulcer.	Burst abdomen.	Home well.
16	F.	76	9 months.	Three severe hæmorrhages.	Chronic duodenal ulcer.	——	Home well.
17	F.	74	3 months.	Three severe hæmorrhages.	Two subacute gastric ulcers and chronic gastric ulcer.	——	Home well.
18	F.	78	"Some time."	Two severe hæmorrhages.	Acute gastric ulcer.	Right basal pulmonary collapse.	Home well.
19	M.	72	?	Two severe hæmorrhages.	No ulcer found.	——	Home well.
20	M.	78	2 years.	One severe hæmorrhage.	Chronic duodenal ulcer.	Anuria.	Died on third post-operational day.
21	F.	75	Years.	Two severe hæmorrhages.	Three acute gastric ulcers.	——	Home well.
22	M.	71	?	Bleeding and perforation.	Perforated chronic gastric ulcer.	——	Home well.
23	M.	82	?	Bleeding and perforation.	Perforated chronic duodenal ulcer.	Duodenal fistula.	Home well.

[1] Cases 1 to 10 are the elective cases; Cases 11 to 21 are cases of gastrectomy for severe hæmorrhage; Cases 22 and 23 are cases of gastrectomy for perforation.

[2] A "severe hæmorrhage" means a hæmorrhage which required transfusion.

General Management.

In all but one case (Case 9, in which a Finsterer operation was performed), a retrocolic short-loop gastro-jejunal anastomosis in three layers was made after two-thirds or more of the stomach had been removed. Neither diathermy nor "occlusion" clamps were used; vessels opening on the cut edges of the stomach were ligated individually.

In the five uncomplicated ulcer cases, only the patient in Case 3, who had a post-operative ileus, had any "intravenous therapy"; on the other hand, blood was given freely to those whose ulcers had bled. Patients with hæmatemesis and melæna were treated initially by physicians. In most cases the surgeon was not called until the patient had had two or more severe hæmorrhages (that is, until he required a blood transfusion). At no time was operation refused to any patient bleeding to death from an ulcer.

Naso-duodenal tubes were not used after operation except in the case of perforation, and each patient was encouraged to drink as much water as he wished as soon as he awoke from his anæsthetic.

The Elective Cases.

In most of the elective cases the patients took the operation in their stride; two had retention of urine and one a post-operative ileus.

The patient in Case 4, aged 76 years, had a slight cough before operation and was later found to have a carcinoma of the bronchus. The patient in Case 2, aged 84 years, whose bladder had been catheterized after operation for retention of urine, but who went home well, returned two weeks later to die of uræmia due to prostatomegaly, with severe cystitis, pyelonephritis and gastro-intestinal bleeding (particularly from all the remaining gastric mucosa). Both of these were elective cases, and it is not to my credit that such common burdens of old age went unrecognized.

In view of still-prevailing ideas on the subject, it is worth mentioning that all four patients with pyloric stenosis in this series had active duodenal ulcer craters. The ulcers were far from "burnt-out", and are not likely to have been cured by gastro-enterostomy.

The Emergency Cases.

The most striking feature of the emergency gastrectomies for severe hæmorrhage was that the bleeding was due to an "acute" ulcer in three patients, none of whom had a brief history, while "acute" ulcers accompanied a bleeding chronic ulcer in two other patients. This suggests that "acute" ulcers (at least in the aged) may be part of a chronic disability, perhaps Kinsella's "chronic gastritis". In one case (Case 19) no ulcer was found. However, gastrectomy stopped this patient's bleeding and, since the gastric remnant was not deliberately inspected, one suspects he may have had an "acute" ulcer in it. As Jones and King (1953) have pointed out, the mortality for bleeding from "acute" ulcers is almost confined to patients aged over 65 years; it is the elderly, not the young, who are most likely to require gastrectomy for this condition.

Two of the patients operated upon for severe hæmorrhage died. The patient in Case 13, aged 77 years, had bled intermittently (three times severely) for two weeks before operation; he died of pulmonary embolism the following day. The patient in Case 20, aged 78 years, developed anuria and died on the third day after operation from pulmonary œdema; his blood urea content was 38 milligrammes per 100 millilitres on the day of operation and 206 milligrammes per 100 millilitres three days later. At autopsy he was found to have only one large pale kidney.

Both of the patients operated upon for perforation had bled also, and it was this combination of circumstances that led to gastrectomy. Both ulcers, one duodenal and one gastric, were large. The former patient (Case 23), aged 82 years, suffered a post-operative duodenal fistula which never seriously endangered

his life; he has now made a complete recovery. His fistula was no doubt due to an over-enthusiastic attack on the ulcer, and probably could have been avoided by a Finsterer ("Bancroft") operation.

Conclusions and Comment.

1. Elective partial gastrectomy for ulcer is safe in the aged, but special care must be taken to identify concurrent disease. All 10 patients left hospital well, but one died shortly afterwards of uræmia due to prostatomegaly, and another was found later to have a carcinoma of the bronchus.

2. Emergency partial gastrectomy is more hazardous in the aged. On the other hand, most of the patients in this series came relatively late to operation, and the two who died had been ill in hospital for 13 and 14 days respectively before operation. It is suggested that this mortality could be largely avoided by earlier surgery, which is often delayed because of the advanced age of the patient, when, by analogy with fractured femoral neck, the reverse should be true.

3. "Acute" ulcers may have a long history and are probably incidents in "chronic gastritis".

Acknowledgements.

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PARATHION: ITS USES AND HAZARDS, WITH A REPORT OF A FATAL CASE OF POISONING.

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IN view of the extensive use of parathion by farmers it is thought that the features of the following case may be of interest to medical practitioners in rural practice.

Case Report.

During April, 1957, a farm labourer, aged 18 years, died of parathion poisoning. He had been engaged in spraying a mixture of parathion and DDT for at least two months preceding the date of the tragedy. Both he and the farmer for whom he worked had had considerable experience in the use of parathion, and they seemed to be well conversant with its potential toxicity.

On this occasion parathion was used on a cauliflower crop, and the following is the method which was used for spraying the rows of cauliflowers. One man drove the tractor on which was attached the tank containing the parathion mixture and compressor unit. From the tank there extended a 40 foot boom to which spraying nipples were attached every 18 inches along its entire length. The end of the boom was obviously sealed. This end was attached by a chain to a long pole on the back of the tractor in an effort to prevent whipping. However, the length of the boom necessitated the presence of one of the men at the sealed end. This man would manually direct the boom over the plants in the rows while the tractor moved over the bumpy ground.

The labourer had been on the boom for one week preceding the tragedy. On this day they had worked until 4 p.m. when the boom rose suddenly and knocked his mask off. He told his fellow-worker that he had swallowed a little of the spray, and they immediately stopped work. He washed out his mouth and had a shower. We are informed that he wore plastic trousers, rubber boots, a leather coat, rubber gloves, a mask and a straw hat.

He had his dinner normally at 7.15 p.m., but suddenly felt ill and dizzy and vomited. He was immediately taken in to Cleveland where he was seen by a private practitioner (W.P.B.). At this time he was comatose and cyanosed and in a general state of myoclonus. Both urine and fæces had been passed involuntarily. The pupils were widely dilated. Respiration was spasmodic and shallow, and blood-stained discharge was oozing from the mouth.

He was given atropine 1/50 grain intravenously, and the ambulance was called. W.P.B. states that a free airway was maintained with difficulty owing to masseter spasm, and that artificial respiration had to be maintained. Two further injections were given intravenously in the ambulance, and on his arrival at the hospital at 8.30 p.m. a McGill's tube was inserted and he was put into the artificial respirator. At the time of the insertion of the McGill's tube, the patient was pulseless and respiration had apparently ceased. After three quarters of an hour life was pronounced extinct. (There seems little doubt that he had died in the ambulance on the way to the hospital.)

The chief features of the case are in keeping with those described in parathion poisoning except for the dilated pupils. It will be noted that this sign was present prior to administration of the first dose of atropine. However, the short time interval between his being seen by the doctor (W.P.B.) and his death may explain this situation unless the pupils had already lost their vital tone. If this is so, we would suggest that dilatation of the pupils in a case of parathion poisoning indicates a hopeless prognosis and presages death.

Though this man had apparently worn protective clothing, it is apparent from the apparatus that anyone at the end of the boom must have been thoroughly wetted by the spray during its operation. It is our opinion that the patient had arrived at a subclinical level of cholinesterase inhibition by the day of the tragedy, and that the accidental ingestion of a further amount was sufficient to tilt the scales against him.

Investigations.

Post-mortem findings revealed a large amount of frothy fluid in the larynx, the trachea and the bronchi; the lungs were seen to be congested and markedly œdematous; the heart appeared normal with no very significant findings in the other organs. The Government Analyst's Department reported the presence of parathion in the urine and in the organs, and that the blood contained parathion in the proportion of 1·2 milligrammes per 100 millilitres. Analysis of the parathion in the tank on the tractor revealed a concentration of 0·03 milligramme per 100 millilitres.

Discussion.

A fatal case of parathion poisoning occurred in Queensland in 1954 in a child aged 19 months. This child had been playing with a tin which contained parathion spraying compound in a strength of two tablespoons to four gallons of water. This would be about 0·15 milligramme per 100 millilitres, and is well above (approximately 10 times) the recommended strength. The child died within one hour after the incident, having exhibited severe vomiting and convulsions. The child had obviously either drunk the fluid or sucked its fingers. Post-mortem findings did not reveal any abnormal changes in the organs, but analysis showed parathion to be present in the blood, liver and stomach. This case may be accepted as one of gross poisoning. Another fatal case of parathion poisoning has been recently reported from New South Wales (Gilsenan, 1957), the victim in this case being a young man.

At least 10 deaths had been reported in the United States of America by 1953 from careless handling of parathion. These all occurred in adults engaged in the manufacture of the chemical or its use in the field. Abrams, Hamblin and Marchand (1950) list a series of eight fatalities, in all of which gross carelessness, negligence, or indifference was apparent. Two of these cases correspond in broad outline with the circumstances in the case described in this article; one patient was a farmer and the other an entomologist. One accidental death of a child was reported (Johnston, 1953). This child died after playing with a discarded can containing parathion and DDT.

Death occurred eight hours after exposure. Four other cases of poisoning with recovery were reported in the same article.

The estimated minimum lethal dose in a man weighing 70 kilograms may be as low as 12 to 20 milligrammes (70 times the toxicity of DDT). Absorption occurs through the skin, conjunctiva, respiratory and gastro-intestinal tracts.

Signs.

Signs may be summarized as muscarinic, nicotinic, and those due to generalized dysfunction of the central nervous system. The mechanism of action presented in Table I is dependent on the fact that the organic phosphorus compounds exert an anti-cholinesterase effect.

TABLE I.
Signs of Parathion Poisoning.

Signs.	Less Severe Exposure.	Severe Exposure.
Muscarinic	Anorexia, nausea, headache, weakness and fatigue, abdominal cramps, tightness of the chest, blurring of vision, excessive sweating and salivation.	Severe headache, vomiting, abdominal cramps, tenesmus, diarrhœa, involuntary defæcation and urination, elevated blood pressure, miosis, excessive bronchial secretion, pulmonary œdema, cyanosis, paralysis of muscles of respiration.
Nicotinic ..	Muscular fasciculation, especially of the eyelids and tongue.	Fasciculation in the muscles of the face and neck, jerking movements of the eyes, cramps in the legs, muscular incoordination.
Central nervous system	Restlessness, anxiety, giddiness, insomnia.	Slurred speech, mental confusion, visual distortion, disorientation, convulsions and coma.

Agricultural workers exposed to this insecticide under normal conditions show a fall in the cholinesterase content of the red blood cells and the plasma. However, restoration to normal levels is satisfactory if exposure has been minimal and opportunity exists for recovery in between spraying. The recovery of cholinesterase is only about 1% per day, and this is dependent on new formation of enzyme protein (Merewether, 1956). If, however, careless handling is responsible for excessive absorption, and if workers are engaged for long hours on consecutive days, cholinesterase activity of the plasma and red blood cells may fall to a dangerous level. It is very important to realize that acetyl-choline itself is an anti-cholinesterase. The activity of cholinesterase increases with rising concentrations of acetyl-choline, but at the point of maximum concentration any further increase of the latter causes inhibition. This factor operates to the detriment of a patient suffering from severe poisoning, and may turn the scales against him.

It is important to realize that sufficient cholinesterase will regenerate within 48 hours after toxic doses of the organic phosphates have been received, either by one single dose or frequent smaller doses, but that it may take months to reach normal levels. During this time it has been found that such individuals are more susceptible to cholinesterase inhibition. Any patient surviving for 24 hours will, in all probability, recover. Estimation of cholinesterase activity is relatively difficult, though a rapid field method was devised by Limperos and Ranta in 1953 and was modified by Davies and Nicholls (1955) and by Wolfsie and Winter (1954). This method utilizes bromthymol-blue; it may be employed in the field as it is a colorimetric test, and incubation of the reagents can be accomplished in the axilla of the patient. The only skill required by the operator is the ability to draw blood by fingertip puncture and to distinguish between shades of brown and green.

It is obvious that under ideal conditions it would be relatively easy to detect a significant fall in any particular worker's cholinesterase activity. However, this type of supervision would apply only where large groups of agricultural workers, or workers engaged in the manufacture of the compound, were concerned. In Queensland conditions of farming, where most farms are relatively small and only a small work force is employed, it is manifestly impracticable to offer this service, and it is essential to disseminate knowledge of the hazardous nature of the compound and to reasonably restrict its use.

In a survey of cholinesterase levels amongst agricultural workers (Fryer and Williams, 1956) no consistent relationship of fall in cholinesterase levels to the number of items of protective clothing worn by workers was found; but suspicious falls in blood cholinesterase levels appeared to be correlated to the duration of exposure of subjects to the organic phosphorus insecticide.

The chemical compounds able to inhibit cholinesterase may produce a significant reduction in the anti-cholinesterase activity of red cells or plasma before symptoms of poisoning become evident. It is important to estimate pre-exposure levels in any group of workers (manufacture or agriculture) who are to be employed in such work.

Normal levels have been estimated by numerous workers, and a suitable standard of values is described by Callaway, Davies and Rutland (1951). These values are based on plasma enzyme figures of 89 units and 115·6 units for the red cell enzyme. However, the range of normal limits is high and lies between 57% and 147% of the mean value for plasma and between 78% and 122% of the mean red cell enzyme value. These units represent the amount of enzyme present in 1/30 millilitre of cells or serum, which produces one microlitre of carbon dioxide in 30 minutes. Other methods of estimation are dependent on the change in pH of buffered plasma or red cells during incubation for one hour at 25° C. with substrate acetyl-choline chloride. Barnes, Hayes and Kay (1957) suggest a value of 50% of the mean normal level, that is a rate of change of pH per hour of 67 units, as of clinical significance.

It is important to realize that plasma enzyme may be inhibited very considerably without development of symptoms. Our belief is that these are the circumstances in the case described, and that this man had reached a subclinical level of cholinesterase inhibition, the level of which was lowered to an irreversible figure on the last day; the accidental swallowing of an unknown amount of the compound precipitated this process.

It seems that protective clothing is not the complete answer if inadvisable methods of application are used. A main factor to be realized is that cholinesterase activity may progress to less than 20% of normal before any signs of poisoning appear, so that it is easy to understand the rapidity with which the symptoms may occur in a man who has already reached this figure and whose absorption is increased for any accidental reason.

Treatment.

Atropine is a specific antidote for many of the symptoms resulting from interference at the neuromuscular junctions occasioned by organic phosphorus poisoning. In mild cases, two milligrammes of atropine (1/30 grain) should be given intravenously and will probably be effective within 40 minutes. The dose may be repeated every 40 minutes until signs of poisoning are relieved or until mild atropine poisoning is evident, that is dry mouth, warm skin and dilatation of the pupils. In severe cases, such as the one described, every possible means of restoration is employed including frequent doses of atropine, and it should be remembered that any person who is ill enough to require a second dose of atropine should be watched for at least 48 hours. Morphine should not be administered because of its depressant effect on the respiratory centre.

It is quite obvious that all clothing, if not already removed, should be changed, and washing of all possibly contaminated areas with soap and water should be carried out in order to remove any trace of parathion contamination of the skin. As described in this case, artificial respiration, both manual and mechanical, may be indicated

to tide the patient over the critical period. It must be pointed out that atropine specifically antagonizes only the muscarinic effects of poisoning, and that there is no known antidote of the nicotinic effects though they may be antagonized by curare. However, there seems to be no place or indication for the use of this drug, as the nicotinic effects are not threatening to life.

Prevention.

The dangers associated with any insecticide depend broadly on its mammalian toxicity and on the conditions under which it is used. It is improbable that any insecticide will be devised that is entirely harmless to mammals owing to the over-all similarity between various sections of the animal kingdom in metabolic and other vital processes.

Many thousands of square miles in America have been sprayed with parathion without accidental poisoning, and very few workers show any degree of toxic absorption. As has been emphasized, only large departures of cholinesterase levels from the normal are clinically recognizable. Barnes and Davies (1951) point out that the organo-phosphorus insecticides may be manufactured and applied without risk, provided the manufacturer, the consumer and their employees cooperate by rigid adherence to every form of safety device and procedure which has been developed for that end.

In California between one and two million pounds of parathion are used each year, and there is no doubt that if the other toxic phosphates were used in like manner there would be as many cases reported as with parathion.

It is the practice in other countries to utilize special cabs which are entirely enclosed, and to limit the work, in general, to contractors specializing in spraying procedures. However, in Queensland, where most plots are relatively small, there is little call for such expensive machinery. The farmer has little or no work force available, and the use of parathion or other organic phosphates is strictly limited and is advised in the following circumstances only (Queensland Department of Agriculture and Stock). (*a*) For citrus crops' red scale: parathion should be applied in early December and again in late January as parathion 0·015 milligramme per 100 millilitres of water, in white oil in a ratio 1:80. (*b*) For tobacco crops: parathion is recommended for use against the tobacco mite at fortnightly intervals only. (*c*) For apple and pear pests: parathion combined with DDT is recommended for use against these pests in late November only, and is especially recommended for mite control. A warning in regard to the hazards involved and the precautions to be taken is incorporated in each of the pamphlets quoted.

It may be noted, therefore, that parathion has certain specified indications only, according to the Senior Entomologist of the Department of Agriculture and Stock (Dr. W. A. McDougall). Indiscriminate use of parathion is therefore neither a recommended nor a wise procedure.

In order to prevent indiscriminate use of the organic phosphates, Queensland regulations forbid the sale or use of these substances in the dry or powder form, and restrict the sale of liquid or emulsion preparations to tins containing not less than one imperial pint. As noted earlier, the regulations further specify that the preparation should not be used in a strength greater than 0·015 milligramme per 100 millilitres. The intention of these regulations is to restrict the use of organic phosphates to professional agriculturalists, and to prevent home-gardeners from acquiring small quantities, which are easily misplaced and readily left lying about.

Precautions Advised.

The following precautions are advised: (i) education of the farmer and the contractor in the hazards involved; (ii) proper instruction of the worker handling the spraying machines; (iii) proper storage and disposal of containers to avoid needless tragedies, especially those involving children; (iv) immediate and thorough washing in the event of spillage. In America a hand spray is seldom used, a covered cab and automatic machinery being favoured. The issue of special permits for spraying parathion, with regulations as to the methods to be employed, would be a reasonable precaution, and would imply the capacity of the purchaser to read and understand the instructions on the label.

Summary.

A fatal case of parathion poisoning is described, and the mechanism of action of the organic phosphates is discussed, together with brief comments on their usage and on the precautions to be taken to avoid deleterious effects on operators.

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Addendum.

In 1956 Wilson and co-workers published the results of experimental work on the derivation of compounds capable of reactivating cholinesterase. They found that 2-pyridine aldoxime methiodide (2-PAM) is a very powerful reactivator, producing large reactivation within a minute or two at 10^{-5} M concentration. This discovery is one of the more ingenious applications of modern organic chemistry, in that the molecule was quite deliberately designed to produce the specific capacity for reactivation of tetraethylpyrophosphate inhibition.

Their experiments showed that the compound was non-toxic to mice and the compound was found to produce complete survival from an LD_{100} dose of paraoxon with a safe dose of 2-PAM. This substance, therefore, acts in an entirely different manner from atropine in that it repairs the biochemical lesion by organic alkyphosphates, whereas atropine only controls the symptoms and does not produce reactivation of the irreversible inhibition of cholinesterase produced by the organic phosphorus compounds.

Recently, Namba and Hiraki (1958) have reported the use of PAM in a series of five cases of poisoning due to alkyl-phosphate in Japan. The results were quite startling and almost instantaneous recovery occurred in five cases, one of which was very severe.

As PAM has been proved to be safe to use by intravenous administration with no toxic or deleterious side effects, it is recommended in the treatment of cases of parathion poisoning and should be administered in a dose of one gramme intravenously without delay, together with atropine and other measures as discussed in this article.

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Reviews.

Medical Radiation Biology. By Friedrich Ellinger, M.D.; 1957. Springfield, Illinois, U.S.A.: Charles C. Thomas, Publishers. Oxford: Blackwell Scientific Publications. 9" x 5¾", pp. 1080, with many illustrations. Price: £7 10s. (English).

RADIOBIOLOGY, although studied before the war, received an impetus from the impact of the nuclear age that carried it into the forefront of science. In fifteen years the subject has become immense, and radiobiological articles are currently to be seen in at least 40 well-read periodicals. There have been several popular and semi-popular books, and last year an excellent English, long overdue text. The author of the present American text has himself engaged in much of the early research in radiobiology, and is well qualified to try to bring the subject matter together and give this branch of science a cohesive text.

There are 20 pages of contents in the front of the book, but no index. Of its 950 pages, 250 at the end have an extensive literature (4600 references) divided into four parts. Part I of the text consists of 100 pages concerning fundamental radiation biology and an absolute minimum of physics. In Part II the biology of ionizing radiation is tackled tissue by tissue, and sometimes exhaustively, when many controversial theories of a certain effect of radiation are given. Concerning whole body irradiation, the American attitude of yesterday is taken that recovery is due to a humoral factor. This emphasizes that the book is up to date only to 1954-1955, for unfortunately the classical work of the Harwell group is not included. There are very good chapters dealing with radiation as a hazard in diagnosis, therapy, industry and public health as a whole. Once again we must not be disappointed when 1956 environmental studies in leukæmia do not appear. The genetic hazard is well put. There are 50 factual pages dealing with radioisotopes in radiobiology and a longer section on effects of ionizing radiation in malignant disease. Parts III and IV concern the effects of ultra-violet, infra-red and visible light.

The book will be valuable to radiobiologists primarily as a reference work, and also will be of interest to radiotherapists, and to those interested in radiation as a public health hazard.

A Short History of Psychotherapy in Theory and Practice. By Nigel Walker, Ph.D.; 1957. London: Routledge and Kegan Paul. Sydney: Walter Standish and Sons. 8¼" x 5¼", pp. 200, with illustrations. Price: 25s. (English).

IN this book Dr. Nigel Walker surveys various techniques of interpersonal communication employed with a therapeutic aim. He pays particular attention to differences in method in the emphasis on certain topics (e.g., childhood experiences as against more recent traumatic situations) and in explanation. Under "Counselling", the author refers in some detail to Carl Rogers, of Chicago. His methods, however, seem to differ little from those of the many psychiatrists and psychotherapists who are not wedded to any special teaching, but who have some knowledge of psychoanalytical theory and practice, which they apply as they deem helpful in any particular case. Soviet psychotherapy, we are told, makes an appeal to logic and includes indoctrination, as well as suggestion applied with less disguise through hypnosis. Reeducation by Pavlovian reconditioning, and incentive and work therapies are also applied. The late Georg Groddeck was the first to apply psychoanalysis to the treatment of somatic disorders. Psychosomatic disorders, according to Dr. Walker, are just those which some people treat successfully by means used to treat mental symptoms. In one clinic for children run on psychoanalytical lines mud and water were excluded as play material, the reason given being undesirable gratification with excremental symbols, rather than considerations of a more practical order.

The author has performed a notable service in his search for a common denominator in the various techniques of psychotherapy. He sees a continuing need for the slower methods of Freud and Jung in more severe cases, while allowing that eclectic procedures which are quicker and less intensive, yet modified from time to time by psychoanalytical influences, will be applied to an increasing extent in combinations of private and group sessions. Mesmer may be regarded as the originator of a definite procedure in psychotherapy which owed its efficacy to suggestion. In the last 50 years we have seen the introduction of a bewildering variety of psychotherapies, with theories of more or less merit propounded to justify their application. Is the wheel turning full circle back to suggestion as the basic common factor? This book, which is illustrated by photographs of leading psychotherapists, will repay close study by psychiatrists and others.

Hemorrhagic Diseases. By Armand J. Quick, Ph.D., M.D.; 1957. Philadelphia: Lea and Febiger. Sydney: Angus and Robertson, Limited. 9¼" x 6", pp. 452, with 37 illustrations. Price: £5 3s. 6d.

THIS book is an authoritative, well-written monograph by one of the foremost workers in the field. It is almost a completely new book, based on two monographs[1] published in 1942. As Quick observes in his preface, it was "his good fortune to have begun his work in the field of hæmorrhagic disease a few years before the new and modern era had its birth. This afforded a unique opportunity to become well acquainted with the older concepts and to observe and follow the tremendous advances that were made in the present quarter of a century". Part I, after two introductory chapters, deals with clinical work; Part II deals with laboratory tests, 25 of which are given in detail. These are the procedures used by the author and his associates, particularly for diagnosis and for control of therapy. He believes that "the confusion in blood clotting has not come nearly so much from the numerous theories as from the faulty laboratory methods—and even more from bad technique". This may be so; but the numerous theories are still very confusing, and the chapter on "The Coagulation of the Blood and its Role in Hæmostasis" is fantastically intricate. This chapter, like the others, is well documented, but Quick does not follow the common practice of including the date each time an author's name is mentioned; one misses these dates in an historical survey.

[1] Quick, A. J. (1942), "The Hæmorrhagic Diseases and the Physiology of Hæmostasis", Springfield, Thomas.

The account of the hypoprothrombinæmic states is a clear and interesting treatment of a "most fortuitous combination of events" which linked hæmorrhagic disease of the newborn and bleeding in the jaundiced patient with a mysterious disease in animals fed on spoiled sweet clover hay, and led to the discovery and synthesis of vitamin *K* and a new treatment for thrombosis. In all this Quick and his associates played a very important part. Each chapter has been made an independent unit, which involves a certain amount of repetition.

This book is indispensable to the coagulationist and the hæmatologist. It should, however, be read in conjunction with those of other workers, for authorities in this field are by no means unanimous.

Books Received.

[The mention of a book in this column does not imply that no review will appear in a subsequent issue.]

"Carcinoma of the Lung: An NAPT Symposium"; 1958. London, Edinburgh, Belfast: National Association for the Prevention of Tuberculosis and Diseases of the Chest and Heart. 7¾" × 5¼", pp. 48, with illustrations. Price: 6s. (English).

The report of a meeting held in London on November 22, 1957, under the chairmanship of N. Lloyd Rusby, M.A., D.M., F.R.C.P.

"Casualty Faking", written and illustrated by Ernest James Ward, with an additional chapter by Dr. J. E. Haine, M.B., Ch.B., D.P.H.; Second Edition; 1958. Published for The British Red Cross Society by Educational Productions, Limited. 8¾" × 5¾", pp. 45, with 14 illustrations. Price: 4s. 6d.

A practical account of casualty faking for use in first-aid training.

"Homosexuality, Transvestism and Change of Sex", by Eugene de Savitsch, M.D.; 1958. London: William Heinemann (Medical Books), Limited. 7" × 4¾", pp. 128, with six illustrations. Price: 12s. 6d. (English).

Written in the first place "to satisfy numerous enquiries about the so-called 'change of sex' operation".

"Smoking, Lung Cancer and You", by Robert N. C. McCurdy, M.B., Ch.B., D.P.H., with an introduction by D. John Burton; 1958. London: Linden Press. Sydney: John Gilmour and Sons. 7" × 4¼", pp. 72. Price: 7s. 6d.

A popular book on a topical subject.

"Child Health and Pædiatrics: For Nurses, Health Visitors and Social Workers", by R. McL. Todd, M.A., M.D., M.R.C.P., D.C.H.; 1958. London: William Heinemann (Medical Books), Limited. 7¼" × 4", pp. 250, with 34 illustrations. Price: 21s. (English).

Based on three series of lectures prepared respectively for child care officers, nurses and health visitors.

"Neuropathology", by J. G. Greenfield, M.D., F.R.C.P., LL.D., W. Blackwood, M.B., Ch.B., F.R.C.S.E., M.R.C.P.E., W. H. McMenemey, M.A., D.M., F.R.C.P., A. Meyer, M.D., and R. M. Norman, M.D., M.R.C.P., D.P.M.; 1958. London: Edward Arnold (Publishers), Limited. 9¾" × 7", pp. 650, with many illustrations. Price: £5 5s. (English).

A basic treatment of the subject in the light of modern advances.

"Electron Microscopic Atlas of Normal and Leukemic Human Blood", by Frank N. Low, Ph.D., and James A. Freeman; 1958. New York, Toronto, London: McGraw-Hill Book Company, Incorporated. 9¾" × 7", pp. 362, with many illustrations. Price: $25.00.

This is stated to be the first work of its kind.

"Principles of General Surgical Management", by H. A. F. Dudley, F.R.C.S.E., with the assistance of B. C. Paton, M.R.C.P.E., *et alii*, and with a foreword by John Bruce, C.B.E., T.D., F.R.C.S.E.; 1958. Edinburgh and London: E. and S. Livingstone, Limited. 9¾" × 6¾", pp. 212, with 67 illustrations. Price: 27s. 6d. (English).

The author is Lecturer in Surgery in the University of Edinburgh.

"An Atlas of Airborne Pollen Grains", by H. A. Hyde, M.A., F.L.S., and K. F. Adams, B.Sc.; 1958. London: Macmillan and Company, Limited. 9¾" × 7", pp. 130, with many illustrations. Price: 56s. 6d.

The authors are respectively a botanist and an allergist.

"Pharmacology and Therapeutics: A Textbook for Students and Practitioners of Medicine and its Allied Professions", by Arthur Grollman, Ph.D., M.D., F.A.C.P.; Third Edition; 1958. Philadelphia: Lea and Febiger. 9" × 5¾", pp. 1336, with illustrations. Price: £6 17s. 6d.

In this edition the book has been completely revised and to a large extent rewritten.

"A Modern Practice of Obstetrics", by D. M. Stern, M.A., M.B., B.Ch., F.R.C.S., F.R.C.O.G., and C. W. F. Burnett, M.D., F.R.C.S., F.R.C.O.G., with line drawings by Susan M. Robinson, M.M.A.A.; Second Edition; 1958. London: Baillière, Tindall and Cox. 10¾" × 7¼", pp. 268, with 141 line drawings. Price: 45s. (English).

"This book sets out the practice of obstetrics based on the experience gained from some 65,000 consecutive deliveries during the past twenty-eight years."

"Foundations of Neuropsychiatry", by Stanley Cobb, A.B., M.D., Sc.D.; Sixth Revised and Enlarged Edition; 1958. Baltimore: The Williams and Wilkins Company. 9" × 5¾", pp. 324, with illustrations. Price: 55s. (abroad).

This is a revised and enlarged edition of a work formerly known as "A Preface to Nervous Disease".

"Infant Feeding and Feeding Difficulties", by Philip Rainsford Evans, M.D., M.Sc., F.R.C.P., and Ronald MacKeith, M.A., D.M., F.R.C.P., D.C.H.; Third Edition; 1958. London: J. and A. Churchill, Limited. 8" × 5", pp. 304, with 66 illustrations, including two colour plates. Price: 16s. (English).

This volume has been considerably revised since the previous edition appeared in 1954.

"Parent-Child Tensions", by Berthold Eric Schwarz, M.D., and Bartholomew A. Ruggieri, M.D.; 1958. Philadelphia: J. B. Lippincott Company. Sydney: Angus and Robertson, Limited. 9" × 5¾", pp. 256. Price: 54s. 6d.

A discussion in non-technical language for the layman by a psychiatrist and a pædiatrician.

"Autonomic Dyspraxia: An Hypothesis for the Mechanism of Psychosis, Neurosis and Psychosomatic Disease", by Brian G. Haynes, M.B., B.S., M.R.C.P.; 1958. London: H. K. Lewis and Company, Limited. 8¾" × 5¾", pp. 132. Price: 15s.

A new publication by an Australian author.

"The Year Book of Urology (1957-1958 Year Book Series)", edited by William Wallace Scott, M.D., Ph.D.; 1958. Chicago: The Year Book Publishers. 7¾" × 5", pp. 360, with 79 illustrations. Price: $7.50.

One of the Practical Medicine Series of Year Books.

"Rehabilitation: A Community Challenge", by W. Scott Allen; 1958. New York: John Wiley and Sons, Incorporated. London: Chapman and Hall, Limited. 9" × 5¾", pp. 272, with illustrations. Price: $5.75.

A comprehensive discussion based on experience in America.

"The Medical Management of Cancer", by Henry D. Diamond, M.D., F.A.C.P.; 1958. New York and London: Grune and Stratton. 8¾" × 5", pp. 194, with 40 illustrations, 23 tables and 13 charts. Price: $6.75.

To maintain brevity the author deals only with "the definitive medical (nonsurgical) methods of treatment of the *cancer* rather than its host, the patient".

"Tracheotomy: A Clinical and Experimental Study", by Thomas G. Nelson, Major, M.C., U.S.A.R.; 1958. Baltimore: The Williams and Wilkins Company. 10" × 6¾", pp. 118, with 47 illustrations. Price: 41s. 3d.

The author sets out to present the story of the evolution of tracheotomy, to analyse the indications, technique and complications in 310 tracheotomies, and to evaluate the technical aspects of the operation.

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RENEWED INTEREST IN ENDEMIC GOITRE.

THE interest of the profession and to a lesser extent of the lay public in endemic goitre has waxed and waned several times over the last one hundred and fifty years. The first peak followed the discovery of iodine by Courtois in 1811 and the demonstration of its presence in seaweed by Sir Humphry Davy in 1814, and in sponges by Fyfe in 1819. The ashes of sponges had long been used to treat some forms of goitre, so that it was logical that iodine should replace the use of crude preparations made from sponges. The next wave of interest occurred during the last two decades of the nineteenth century and was due to the demonstration by several workers that preparations of fresh animal thyroid reduced a simple enlargement of the thyroid. Interest waned because of the failure of some extracts due to the methods of preparation. Then the success of the large-scale experiments in prevention carried out by Marine and Kimball on school children at Akron, Ohio, U.S.A., in 1916, stimulated a large number of similar experiments which constituted the third wave of interest and laid the foundations for all programmes in the prevention of endemic goitre since. The momentum of this wave receded through the late 1930's and reached a low trough in all countries during World War II. The current wave of interest can be attributed to a number of factors, including improved chemical techniques which have permitted the study of many new aspects of thyroid metabolism, the availability of a safe radioisotope, I^{131}, which has expanded the boundaries of clinical research, and, by no means the least, the stimulation provided by the World Health Organization, which in 1950 started a campaign aimed at the world-wide prevention of this condition. As an early expression of its interest, the World Health Organization convened a study group in 1952 in London to report on endemic goitre. An account of this meeting appeared in this Journal.[1] Shortly afterwards a full issue of the *Bulletin* of the Organization[2] was devoted to papers relating to endemic goitre, and now the most recent number of the *Bulletin*[3] contains five important papers, all aimed at stimulating still further member governments of the Organization to take more active measures towards the eradication of this condition.

The first article in the current issue of the *Bulletin*, by F. C. Kelly and W. W. Sneddon, although concerned with the prevalence and geographical distribution of endemic goitre, refers frequently to opinions held and investigations made in different countries into the ætiology of the condition, gives brief descriptions of the clinical syndromes found to be associated with simple enlargement of the thyroid and mentions the possible sequelæ. The last named is treated at some length in the second article by F. W. Clements. Few countries are free of goitre, and, moreover, there seem to be important differences in the associated clinical features and the sequelæ in the various places where it occurs. Endemic goitre was once thought to be associated with euthyroidism and to cause no ill effects to the sufferer other than those that might be attributed to its appearance. It is interesting therefore to read that the South African Goitre Research Committee has encountered "many cases of simple goitre which were intermittently toxic", and that in Eastern Moravia (Czechoslovakia) "the general picture is definitely one of hypothyroidism", while on the Moravian Plains "goitre also occurs, but it is accompanied by tachycardia, exophthalmos and other symptoms of hyperthyroidism". Workers in Central Africa and mainland China have also reported hypothyroidism and hyperthyroidism as an accompanying clinical feature to simple enlargement in different regions. Likewise the incidence of nodules seems to vary from place to place and not to be particularly related to the severity of the goitre. S. Taylor[1] has recently shown that the occurrence of nodules is one of the effects of iodine deficiency.

An inadequate amount of iodine in the body, the result of a regularly low intake of iodine, which in turn is due to the low iodine content of the soil from which are produced vegetables and milk and to a lesser extent cereals and meat, is considered to be the cause of endemic goitre in many regions. However, data are being assembled which show that other factors probably play a significant role in the ætiology in other places. At the top of the list are the food goitrogens, now being suspected to be causal agents in parts of Australia, Morocco, French West Africa, Uruguay, Czechoslovakia and Italy. Much work yet needs to be done to show what is the exact part played by these substances and if a relationship exists between iodine deficiency and the food goitrogens. Kelly and Sneddon point out that a number of modern writers believe that poverty and unhygienic conditions are causal factors in some groups with gross enlargements. Whether it is these conditions *per se*, or the fact that the poverty condemns these people to a monotonously poor, ill-balanced diet, has not yet been determined. Several workers still associate the consumption of polluted water with the onset of goitre. It will be recalled that R. McCarrison[2] earlier this century produced some convincing evidence from surveys he made in the Gilgit regions of the Himalayas on the effects of contaminated water on the thyroid size. There are a number of references to the possible relationship between the consumption of excessively hard water and goitre; by way of confirmation, S. Taylor[3] has shown in the laboratory that an excess of calcium produced a greater thyroid enlargement in the iodine-depleted rat. Against this hypothesis is the observation that the only goitre-free area in Malaya is where limestone predominates.

[1] M. J. AUSTRALIA, 1953, 2: 251 (August 15).
[2] *Bull. World Health Organ.*, 1953, 9, No. 2.
[3] *Bull. World Health Organ.*, 1958, 18, Nos. 1 and 2.

[1] *Lancet*, 1958, 1: 751 (April 12).
[2] *Indian J. M. Research*, 1914-15, 2: 778.
[3] *J. Clin. Endocrinol.*, 1954, 14: 1412 (November).

It is obvious that the last word has not yet been written on the ætiology of endemic goitre.

When the various hypotheses on ætiology are viewed beside the range of associated clinical conditions observed in different countries, and in different parts of the same country, it is justifiable to raise the question whether endemic goitre is a single clinical entity or whether it is not a number of different conditions produced by different ætiological factors, each having a corresponding clinical syndrome with its own peculiar sequelæ, the only factor common to all conditions being a clinical enlargement of the thyroid gland. It is important to stress that almost all observations have been of a clinical nature, for there is a remarkable paucity of information about the histological and metabolic changes which take place in enlarged glands in different environmental settings; the rapid autolysis of thyroid tissue after death makes it extremely difficult to get good histological material, and only two field studies have been made on goitrous subjects using radio-iodine uptake techniques. One of these was in western Argentine and the other in Venezuela. The results of these two studies are discussed by J. B. Stanbury in the third article in the *Bulletin*.

The supposed relationship of endemic cretinism to endemic goitre is highlighted in two of the papers. It has long been recognized that an appreciable number of cretins occur in some areas where a large percentage of the population have enlarged thyroids, but it seems that few, if any, occur in other areas where the extent and intensity of the goitre seem to be of the same order. Serious doubts are cast by Clements on the possibility that persons suffering from endemic goitre are more likely to produce children who are cretins, deaf-mutes and mental defectives than persons living in a goitre-free locality. This subject is obviously still to a great extent a matter of controversy.

It is interesting to appreciate that animals are not universally affected in the various goitrous regions of the world. In some places where human goitre is extensive, animals also acquire goitres, but this is not so in other places with an equal intensity of human goitre. It has been shown in a few places that an active agent is a goitrogenic substance usually present as a precursor in the fodder. Recent work by Wright[1] in New Zealand suggests that a part, at least, of the goitrogenic activity of milk from ruminants fed on kale is due to the presence of a thiocyanate-like goitrogen. The goitrogenic activity of other plants is also known to be due to a high thiocyanate content. Undoubtedly goitre in animals in some situations is due to iodine deficiency, but the interesting question is why it should not occur universally wherever iodine-deficiency human goitre occurs.

No longer can we consider simple enlargement of the thyroid to be of no medical significance, other than for the æsthetic effects on the individual. Enough evidence has now been accumulated to show that endemic goitre predisposes to toxicity, as N. Wyndham[2] showed for New South Wales and F. W. Clements[3] showed for Australia some years ago. The comparative rarity of carcinoma of the thyroid makes correlation with preexisting endemic goitre difficult. However, Doniach[1] has shown that there is a significantly higher incidence of carcinoma of thyroid in those countries with a high incidence of endemic goitre than in other countries, with equally reliable statistics, which have a lower incidence of simple enlargement.

In their article on therapy and prophylaxis in the *Bulletin*, Matovinović and Ramalingaswami emphasize the point that successful prophylaxis of endemic goitre, as with any other disease, depends upon a thorough understanding of its ætiology and epidemiology. Although recent advances have suggested that in some situations endemic goitre may be due to other ætiological factors, they believe that these observations have not shaken the fundamental principles of prophylaxis of endemic goitre with an increased intake of iodine. Domestic salt still remains the ideal vehicle for this purpose. In the past practically all the salt has been iodized with potassium iodide, but the salt must be purified and contain a stabilizer in order to prevent deterioration of the potassium iodide. In other words, the only form of iodized salt formerly available was free-flowing table salt, a product too expensive for use in undeveloped countries. At the suggestion of the World Health Organization, J. C. M. Holman, of the Chilean Iodine Educational Bureau, London, has developed a method of iodizing crude salt with potassium iodate, which he discusses in the *Bulletin*. Thus it is now possible to provide iodized salt to all parts of the world. It will be recalled that E. H. Hipsley[3] demonstrated in Canberra that goitre can be kept under control by the addition of iodide to bread through the iodization of crude salt used in the dough. However, even the development of a technique for iodizing crude salt is not easy to apply to places like New Guinea, where the mountainous terrain makes transport difficult. It is understood that an experiment is now being carried out in the mountains of New Guinea in which the long-term prophylactic effects of an injected depot of an iodized oil in young children are being tested. In a few countries iodized salt is the only form of salt available for human consumption, but most governments have been content to leave the use of iodized salt in goitrous areas to the free choice of the population. In the light of modern concepts of health education this is probably the preferred procedure; the public is then actively cooperating in the eradication. The policy of leaving the choice to the public, however, places on the health authorities the need to define the goitrous areas, and to maintain regular and effective methods of health education.

In Australia interest in goitre varies from State to State. In Tasmania the incidence of goitre among school children is under constant surveillance. It is understood that a State-wide survey is currently being made in New South Wales, and that one is contemplated for Victoria. Thought undoubtedly needs to be given to the most effective methods of health education in respect of the prevention of endemic goitre. Kimball, after thirty years of experience of goitre prophylaxis in the U.S.A., wrote that educational efforts must be renewed at intervals of about five years. He also has considerable doubts about the value of the unsupported distribution of pamphlets. The incidence of endemic goitre in parts of Australia and the high incidence

[1] *Nature*, June 7, 1958.
[2] M. J. AUSTRALIA, 1940, 1:756 (June 1).
[3] M. J. AUSTRALIA, 1954, 2:894 (December 4).

[1] *Proc. Roy. Soc. Med.*, 1956, 49:173.
[2] M. J. AUSTRALIA, 1956, 1:532 (March 31).

of toxic goitres as sequelæ warrant active programmes of research into ætiology and epidemiology and sustained efforts at nation-wide prevention.

Current Comment.

ORAL TREATMENT OF PERNICIOUS ANÆMIA.

IN 1929 Castle advanced the hypothesis that normal human gastric juice contained a factor ("intrinsic factor") which when given by mouth with a food factor ("extrinsic factor") found in meat would restore the blood picture in pernicious anæmia. Castle and Minot considered that the intrinsic factor and the extrinsic factor combined to give the active principle necessary for marrow formation of red blood corpuscles. This conception was generally accepted, and when vitamin B_{12} was isolated and found to be relatively ineffective when given alone by mouth, because of non-absorption, but was absorbed and was effective when given with normal gastric juice, it was assumed that vitamin B_{12} was the extrinsic factor. An enormous amount of work has been done in search for the intrinsic factor. Various modifications to this idea have been put forward, including the postulation of an intramural intestinal acceptor of vitamin B_{12} which could be saturated and so limit the amount of the vitamin absorbed.

J. G. Heathcote and F. S. Mooney[1] have advanced a new hypothesis that the orally active form of vitamin B_{12} is a peptide complex, and they support it by very good evidence.

Vitamin B_{12} is relatively ineffective by itself when given by mouth, and, alone, it cannot mature megaloblasts *in vitro*. The vitamin then is not the active hæmopoietic principle itself. All forms of vitamin B_{12} available in food are bound to proteins of high molecular weight, and are thus non-diffusible through "Cellophane" and non-assimilable by micro-organisms. It is suggested that a simple proteolysis may take place in the stomach, in which the "bound" protein attached to the vitamin is degraded to a peptide, still attached to the vitamin. In this "free" form it can then be simply absorbed by diffusion through the gut wall. Vitamin B_{12}, when attached to protein or protein derivatives of high molecular weight, is not absorbed, and so shows no activity. If it could be shown that a peptide, isolated not from an animal source but from a mould, promoted the absorption of vitamin B_{12} in pernicious anæmia patients, and, in small doses, kept the patient in health, it would go a long way to support the hypothesis. Such an active principle has been isolated from fermentation of a *Streptomyces* mutant under standard conditions. This substance, labelled H.P.P/1, was separated by complex means which are not given in detail. The substance as isolated was a red powder in which the ratio of peptide to vitamin B_{12} was 6·8:1 with a probable molecular weight of under 10,000. It was dialyzable through "Cellophane" and collodion membranes. Sixteen amino acids were shown to be present in the peptide. H.P.P/1 seemed to be a pure substance. The complex caused the maturation of megaloblasts in culture as rapidly as does folic acid.

Treatment with H.P.P/1 has been tried in six newly diagnosed cases of pernicious anæmia. It was carried out in two consecutive uninterrupted stages. The first was for the correction of the deficiency; the second was for maintenance of the patient in health. In the first case 780 microgrammes of H.P.P./1 (equivalent to 100 microgrammes of vitamin B_{12}) were given daily for eight days; then half this amount was given for fourteen more days. For maintenance 78 microgrammes (equivalent to 10 microgrammes of vitamin) were given. The treatment was completely successful. In the other five cases treatment was given in a similar manner, but with smaller doses, with completely satisfactory results. In a seventh case the patient had early subacute combined degeneration of the cord and was treated with larger doses starting with the equivalent of 300 microgrammes of vitamin. There was marked improvement in relation to all symptoms which has been maintained for 24 weeks.

These results seem to demonstrate clearly that there is no animal factor necessarily concerned in the absorption and utilization of vitamin B_{12}, and that there is no need to postulate an intrinsic factor. Heathcote and Mooney suggest that the complex in food containing protein of high molecular weight is converted in the stomach into a complex containing a peptide of low molecular weight which is dialyzable and assimilable by micro-organisms. It is clear, from the results obtained, that patients with pernicious anæmia can be adequately maintained on orally administered daily doses of 10 microgrammes of vitamin B_{12} when the latter is combined with a peptide. It is suggested that impaired proteolysis is the cause of pernicious anæmia.

The preparation here studied seems to be much closer to the anti-pernicious anæmia factor of liver than is pure vitamin.

[1] *Lancet*, 1958, 1: 982 (May 10).

ACHALASIA OF THE CARDIA.

AN interesting series of studies on achalasia of the cardia has recently been published by J. R. Trounce and his colleagues,[1] of Guy's Hospital, London. They begin with a brief historical review of the subject. Achalasia of the cardia was first described in 1679 by Willis, who thought that the "mouth of the stomach" was obstructed either by a tumour or by palsy. In 1904 Mikulicz suggested that it was due to spasm of the cardiac sphincter and that the characteristic hypertrophy and dilatation of the œsophagus were due to the collection of food above the obstruction. In the meantime, because of the ease with which a tube could be passed through the cardia, Einhorn, in 1888, and Rolleston, in 1896, suggested that the obstruction was due not to spasm but to a failure of the sphincter to relax. Hurst reached a similar conclusion in 1913 and 1914. In 1927 Rake reported subacute inflammation and degeneration of Auerbach's plexus. In 1927 and 1930 Hurst and Rake found these degenerative lesions in eleven more cases. They concluded that because of this degeneration the inhibitory influence of the vagus on the cardiac sphincter was lost. They coined the term "achalasia of the cardia". Similar histological findings were reported by other workers.

However, the view that the obstruction is caused by the nervous degeneration has not been generally accepted. In 1952 Wooler expressed the opinion that the nervous degeneration was secondary to the œsophageal dilatation. Abnormalities of the body of the œsophagus have long been recognized. In 1878 Zenker and Von Ziemssen and in 1884 Mackenzie suggested that the condition was due to weakness of the œsophageal muscle. But in 1948 Templeton and in 1950 Johnstone showed that in the early stages the activity of the œsophagus is actually increased. This activity is later overshadowed by dilatation and tortuosity; but even at this stage powerful contractions can occur. Intraœsophageal pressures have been recorded by Butin, Olsen, Moersch and Code. They found that the pressure waves were abnormal in all cases of achalasia of the cardia. Trounce and his colleagues carried out similar experiments and found that in normal subjects swallowing resulted in a peristaltic wave down the œsophagus. These waves could not be recorded in achalasia of the cardia. In 1953 Barrett pointed out that X-ray examinations showed that the narrow segment was two or three centimetres long and was not merely a ring of constriction at the sphincter. Trounce and his colleagues have observed this phenomenon by cineradiography. They also point out that the narrowed segment is readily observed at operation, and that its muscular walls are normal and form a striking contrast with the hypertrophied and dilated œsophagus above. At post-mortem

[1] *Quart. J. Med.* (1957), 26: 433 (October).

examination, presumably because of longitudinal contraction, the narrowed segment is not so readily seen. They removed strips of muscle from this segment and submitted them to histological and pharmacological examination. They compared these results with those obtained from examination of strips of muscle from the same region in normal subjects. The appearance of the muscle and its activity were essentially the same in both cases. Ganglion cells were seen in the majority of specimens. No appreciable difference was found between the content of cholinesterase in normal muscle and that in achalasic muscle. In other words, the muscle in the narrowed segment appears to be histologically normal and, *in vitro*, to behave pharmacologically as normal smooth muscle.

It is pointed out that the factors governing the relaxation of the lower end of the œsophagus are not fully understood. It may be that if the function of the main body of the œsophagus is abnormal (and there is considerable evidence that it is so in achalasia), the lower end may not receive the required stimulus to relax. Other recent work mentioned by Trounce and his colleagues suggests that the aspiration of air and of stomach contents into the middle low-pressure zone of the œsophagus is prevented by a high-pressure zone at the upper and lower ends respectively. During swallowing "there is a co-ordinated mechanism which leads to the relaxation of the 'zones' and the passage of a normal peristaltic wave down the body of the œsophagus". In achalasia this mechanism is disturbed.

CENTRAL REPOSITORY FOR MEDICAL CREDENTIALS.

THE Secretary General of The World Medical Association has announced that on July 1, 1958, the services of a Central Repository for Medical Credentials will become available to the doctors of the world. All judicious precautions will be exercised to protect the records of depositors.

During war and national uprisings, medical records are destroyed or lost. The plight of hundreds of doctors who fled from their homelands during World War II and during the more recent Hungarian uprising has stimulated The World Medical Association to take steps to assure the doctor that he will always be able to prove himself medically trained and fully accredited to practise medicine. Today, many doctors are working as labourers or research assistants as a result of the loss or destruction of their original credentials and the lack of a protective service in which authenticated copies could be deposited.

The development of the Central Repository for Medical Credentials has been in process for approximately four years. During that period, detailed studies revealed the need for and interest of the medical profession in this service and the wide variations between countries in the legally acceptable form of medical credentials required to establish qualification to practise. They also showed the best method of identifying the individual and his right to the medical credentials, the lowest feasible service rate to assure the life-time utilization of the service for every doctor in the world, and the techniques of national and international processing of the application and credentials.

The life-time cost of the service on a one-payment basis to the newly graduated doctor is approximately $60.00 (U.S.A.). An actuarial schedule has been established for doctors in the various age groups. A ten-year service rate is also available. Provisions have been made for the depositor to add additional credentials he receives to his file in the Repository at a minimal service charge. The officials of the Repository recommend that doctors deposit their credentials in a form legally acceptable in the country or countries in which they would desire to establish themselves as qualified to practise medicine. It suggests that the credentials so deposited include the official medical school record, the medical diploma and specialist credentials. Photostatic or microfilm copies of the original credentials are recognized or coming to be recognized in an increasing number of countries. However, some countries still require authenticated copies of the original or the original record itself. The World Medical Association hopes that the medical profession in countries not now recognizing microfilm copy as legally acceptable will undertake the project of having it so recognized.

The cooperation of the national medical associations, their component local societies, the medical Press and the para-medical Press is essential to provide the doctors of the world with information on the availability of and the need for utilizing the service of the Central Repository. While the fundamental basis of the medical profession is man's humanity to man, and one of the objectives of The World Medical Association is to promote world peace, the scientific education of the doctor directs his objective analysis of facts — world-wide as well as medical. The Central Repository for Medical Credentials is a necessary precaution to assure the doctor that he can always prove himself medically qualified to practise his profession should the diplomats and the governments they represent fail in their efforts to achieve world peace. Additional information on the Central Repository for Medical Credentials is available from The World Medical Association, 10 Columbus Circle, New York 19, New York, U.S.A., or from the offices of the Branches of the B.M.A. in Australia.

THE CORRECTION OF HYPOSPADIAS.

THE operative cure of hypospadias is a problem which has long attracted the ingenuity of surgeons, and numerous operations have been devised. In an informative paper on this subject, K. B. Fraser,[1] of Brisbane, discusses various techniques, and describes the details of the operation which he has finally adopted, quoting a recent series of nine cases in which this operation was used with uniformly good results. He begins by stating unequivocally that major surgical intervention in minor degrees of hypospadias is likely to do more harm than good, and that in such cases interference should be limited to the removal of excessive tissue in the prepuce and, if necessary, a simple meatotomy to provide an adequate urethral orifice. In cases in which the urethral opening is half-way down the penis, the necessity for surgery depends on the degree of bowing of the penis present; if this is marked, the correction of this deformity will bring the meatus back to the base of the penis, and a reconstructed terminal urethra becomes necessary. For straightening the penis, Fraser prefers the simple preputial strap flap operation, and considers that the operation may be undertaken when the patient is from two to five years old, depending on the size of the penis.

Turning to the problem of urethroplasty, he mentions that it is claimed that more than 150 different operative techniques for the cure of hypospadias have been discovered, but states that in most centres the operations now practised are limited to three or four different techniques, with minor variations. The operation which Fraser has finally adopted follows in broad outline the technique advocated by Cecil, which is based on the principles of the Cabot operation, which in turn was a development of an operation introduced by Bucknall in 1907. Fraser has adopted from Denis Browne the idea of a perineal urethrostomy (instead of suprapubic cystostomy) during the period of healing after the first stage of operation, and has added a modification of his own in the method of attaching the scrotal skin to the ventral surface of the penis. In his hands the operation is conducted in two stages, involving a stay in hospital of about twelve or thirteen days for the first stage, and about eight or nine days for the second stage, with an interval of three or four months between. He states that in most cases the operation can be done when the boy is five or six years old. In the first stage, induced hypotension is used to eliminate oozing, and details of the anæsthetic technique are given from notes supplied by R. A. Bennett.

[1] *Aust. & N.Z. J. Surg.*, 1958, 27: 241 (May).

Elsewhere, C. D. Creevy[1] has recently published an extensive review of past and present operations for the cure of hypospadias and the results obtained with different techniques, based on his own personal experience, on a search of the relevant literature, and on information obtained by correspondence with experienced advocates of various types of urethroplasty. He discusses the result of these investigations under two headings, "Straightening" and "Urethroplasty". His own experience of straightening operations comprises 78 cases, in which he used Duplay's operation and Nesbitt's operation in an approximately equal number of cases. He had only one recurrence of curvature requiring further operation, and two cases of urethral stricture.

His own series of operations for urethroplasty comprises 60 cases, in 43 of which the Thiersch operation was used. In over half of these a single urethroplasty gave a satisfactory result, but in 19 a permanent fistula remained. In ten of these this was cured by one further operation, four patients required two further operations, four declined further operation, and one was satisfied with a slightly imperfect result. In nine of his other cases he used the Cecil operation with uniformly good results, and in six he followed Denis Browne's procedure, but in four of these the patients developed fistulæ, and in two complete breakdown occurred. In all cases repair was later completed by other techniques, and Creevy comments: "I have abandoned the method (Denis Browne's) as unsuited to my talents (or lack of them)." Of his remaining two patients, one was cured by the Wehrbein method, the other by the early method of Hamilton Russell. Urethral stricture was a problem only when the ureter was brought through the glans, and he recommends that this method should be abandoned.

The data collected by Creevy from other sources include the following results. Donald Smith has done 39 Wehrbein operations with one complete breakdown and eight fistulæ. Dodson has reviewed 79 urethroplasties done by himself in 75 patients, using the methods of Thiersch, Davis and Ombredanne; fistulæ resulted in 34 cases. Davis has reported 57 cases; in 24 of these fistulæ occurred which required later closing. Havens and Litzon have reported their results in 65 McIndoe operations, in 28 of which fistulæ subsequently developed. Creevy ends by paying a qualified tribute to the work of Denis Browne, of London (formerly of Sydney). A total of 267 patients treated by Denis Browne's operation is the largest number of cases of any one type of urethroplasty collected from the literature, and Creevy admits that the small incidence of fistulæ (15%) among these suggests that his own technique in doing this operation has been faulty. However, we note that Fraser's experience of Denis Browne's operation has been equally unfavourable, and from his comments it would appear that this operation has some serious inherent weaknesses. It has also been critically received by some other competent authorities.

PHENYLALANINE AND TYROSINE METABOLISM IN DIFFUSE COLLAGEN DISEASES.

VERY little is known about the pathogenesis of the diffuse collagen diseases, such as rheumatoid arthritis, acute rheumatic fever, lupus erythematosus, diffuse scleroderma and periarteritis nodosa. Still less is known about the chemical changes which take place in the connective tissues in these conditions. Several workers have shown that serum mucoprotein, which is present in connective tissue, has its tyrosine content greatly increased in acute rheumatic fever, and others have found that rheumatic nodules contain a large amount of tyrosine. Collagen contains no tyrosine.

That there is a changed tyrosine and phenylalanine metabolism in collagen diseases has been demonstrated by six Japanese investigators, Nagao Nishimura *et alii*.[2] They detected in the urine of a patient with dermatomyositis the substance 2,5-dihydroxyphenylpyruvic acid, which is believed to be an intermediary metabolite in the oxidation of tyrosine and phenylalanine. This substance was isolated from the urine of 59 patients suffering from ten different manifestations of collagen disease. Administration of phenylalanine or tyrosine by mouth increased the excretion of the abnormal substance and aggravated the symptoms. Ten healthy persons showed no 2,5-dihydroxyphenylalanine in their urine, nor did 45 patients with a variety of other diseases. Unfortunately there does not seem, as yet, to be available a simple test by which to recognize 2,5-dihydroxyphenylalanine in the urine. Nishimura and his colleagues separated the substance and its oxide from concentrated urine by paper partition chromatography and did their tests on the isolated substances. They state that 2,5-dihydroxyphenylalanine is one of the substances presumed to be an intermediary in the usually accepted scheme for the metabolism of phenylalanine and tyrosine, but it has not previously been found in the human body. There are four clinical conditions known in which there are blocks in this scheme: phenylketonuria, in which phenylalanine cannot be converted to tyrosine; albinism, in which tyrosine cannot be converted into melanin; tyrosinosis, in which p-hydroxyphenylpyruvic acid cannot be converted to 2,5-dihydroxyphenylpyruvic acid; alkaptonuria, in which 2,5-dihydroxyphenyl acetic acid (homogentisic acid) cannot be further oxidized. The finding of 2,5-dihydroxyphenylalanine in the urine in collagen diseases suggests that here there is a block between 2,5-dihydroxyphenylalanine and homogentisic acid; this provides a fifth metabolic block. In the first, third and fifth of these conditions, the blocked end-products all have a keto acid radical in their side chains, and there are specific toxic symptoms. Similar conditions occur in the collagen diseases, but not in alkaptonuria, in which the end-product is not a keto acid. The first four of the conditions listed are due to known genetic faults, but the Japanese authors could find no evidence of a genetic failing in collagen diseases.

The investigation seems to have been carried out with great care. If the results are confirmed elsewhere, it opens up an entirely new and important field of investigation into the causation and symptoms of the collagen diseases.

[1] *Urol. Surv.*, February, 1958.

[2] *Arch. Dermat.*, 1958, 77: 255 (March).

MUSCLE CHOLESTEROL.

ALFONSO DEL VECCHIO, of the Institute of Pharmacology in Milan University, makes a plea for better consideration of muscular tissue as a reservoir of cholesterol.[1] His research, which has included many quantitative estimations of cholesterol by chemical and electrophoretic methods in a wide range of animals, shows clearly that in striated muscle there is a content of cholesterol which must be taken into account in explaining the concentration of this sterol in blood. In a man weighing 70 kilograms there are approximately 28 kilograms of muscle, which contain about 40 grammes of cholesterol—that is, about four times what is present in the blood. The amount of muscle cholesterol varies with the period of life, increasing with age, and also in the same age increasing with activity. A considerable amount is present in the form of lipoprotein, which in muscle is a compound of cholesterol with myosin, whereas in blood the linkage is with globulin. Comparisons with skeletal and cardiac muscle in various animals show that the cardiac form contains from two to four times the percentage which exists in the skeletal form. The function carried out by this cholesterol is a strange problem; del Vecchio quotes the suggestion of Bloor (1940) that "the fact that cholesterol is an excellent dielectric may have something to do with the continuous accumulation and discharge of nervous (electrical?) energy which would be necessary in automatic or continuous rhythmic movement". Possibly muscle acts towards blood cholesterol as bone acts towards blood calcium. Those who hold that cholesterol in food influences arterial atheroma must take into the reckoning the amount of animal flesh consumed.

[1] *Omnia Med.*, 1957, 35: 315.

Abstracts from Medical Literature.

ORTHOPÆDIC SURGERY.

Intramedullary Fixation.

G. KÜNTSCHER (*J. Bone & Joint Surg.*, January, 1958) states that he considers intramedullary nailing as the ideal treatment of fractures because it requires no external fixation and no special post-operative care. He stresses that the nail must be wide enough to occupy the entire cross section of the medullary canal. This is necessary to fix the bone ends firmly; and the nail must be long enough to firmly hold both fragments. He states that there is need of elasticity in the cross section of the nail so that it can be held firmly in the medullary cavity when the size of the cavity is variable; this is achieved by using a nail with a cross section in the shape of a V or a hollow clover leaf. Such nails can be compressed laterally; they must also be elastic longitudinally because some bones are curved. If the method is to be satisfactory, the nail must be large enough to withstand the various stresses of muscle pull. In order to achieve this the medullary canal is reamed with a specially designed drill so as to permit the use of a nail of wide enough cross section. Provided the nail is long enough and strong enough, there is no need for post-operative fixation by plaster or any other method, so that early weight bearing and early strong muscular activity can be achieved. In one case in his series even though there was separation of the bone ends union occurred despite activity. He considers that the danger of infection has been eliminated by antibiotic drugs. The nail is inserted through a stab wound, using X-ray control to direct the nail without exposing the fracture site. To avoid the danger of fat embolism, he waits for five or six days before introducing the nail. In cases of non-union after orthodox treatment, he introduces the nail without exposing the fracture site or adding bone chips.

Central Fractures of the Acetabulum.

R. A. KNIGHT AND H. SMITH (*J. Bone & Joint Surg.*, January, 1958) state that it is only in recent years that orthopædic surgeons have treated central fractures of the acetabulum by open reduction. The principle that anatomical reduction means earlier return to function with more normal result and less degenerative changes is to be expected. It is the formidable nature of the operation that has prevented this being attempted more frequently. The first case performed at the Campbell Clinic was in 1949, and no further cases were attempted until 1955, since when eight patients have been operated on. There has not yet been time for an adequate follow-up, so the final results are not yet known. In this preliminary article the mechanism of injury, the anatomy and, in particular, the interpretation of skiagrams using stereoscopic methods, are described, together with methods of reduction and fixation. Most of these fractures occur in automobile accidents. The patient is usually sitting and relaxed, in the seat of a car, when force is directed through the acetabulum along the line of the thigh. This is expended in the acetabulum in a variable way, depending on the position of the limb at the time of impact. In describing the injury, the authors locate the position of fissures according to their position with reference to an imaginary clock face set in the left acetabulum. In their analysis there are two main types of fracture, the horizontal and the vertical. They emphasize that it is very necessary to have careful stereoscopic films in order to appreciate the distribution of the fragments. Operative management is aimed at primary restoration of fractures involving the weight-bearing area, that is from ten to three on the clock. The horizontal type fracture is conveniently approached by an anterior Smith-Petersen incision. This allows access on the medial side of the ilium. Occasionally the psoas tendon is divided. The vertical fracture is often situated more posteriorly and is more difficult to approach. It may extend into the sacro-iliac joint. This means that a posterior approach is necessary. Reduction is maintained by means of threaded Noels pins. Occasionally Noels pins were driven in to give fixation for Lane's bone-holding forceps in order to reduce the fracture. It is pointed out that reduction was not always complete. Operation is not urgent. Three to seven days, or even later, is often an optimum time, when the general condition of the patient has been improved. In the central dislocation injury it is usually advisable to reduce this dislocation within the first 24 hours. This can be maintained by skeletal traction in plaster or with fixation by means of a Steinmann's pin. Surgery can then be performed at a later date.

PÆDIATRICS.

Blood Cultures in the Newborn Period.

D. V. EITZMAN AND R. T. SMITH (*Am. J. Dis. Child.*, December, 1957) point out that in previous studies of blood culture in the newborn period organisms have been grown in a large proportion of cases, usually *Staphylococcus pyogenes* var. *albus*, and the general feeling has been that blood cultures in this age period were unreliable. These workers therefore carried out blood cultures on 126 ostensibly normal newborn infants in an effort to find whether a technique could be devised which gave satisfactory freedom from contamination. They used jugular puncture. The skin over the neck was prepared carefully, first by 20 circular strokes with a cotton pledget soaked with a detergent containing 3% hexachlorophene. This was removed with a dry cotton pledget and 70% alcohol was next applied, followed by a 2% iodine solution, which was then removed with dry swabs. Culture was made both on pour plates and in broth flasks, the plates being poured in a dust-free room to reduce air contamination. Skin cultures were taken from the area of the neck through which the needle would penetrate immediately before preparation of the skin for taking blood culture and after preparation of the skin by various methods. In the blood cultures taken from normal infants after this method of skin preparation only one out of 126 showed growth in broth. There was occasional growth in pour plates, probably due to air contamination at the time of pouring. It is suggested that this low incidence of contamination is due to the method of skin preparation. Cultures from the skin performed before skin preparation showed large numbers of micro-organisms, predominantly staphylococci. This flora was virtually eliminated by the preparation technique employed. With this technique septicæmia due to several varieties of micro-organisms has been detected in newborn infants during the past two years under clinical conditions. This study indicates that true bacteræmia does not exist in any but a very small number of newborn infants and that a single blood culture is a useful means of detecting blood stream sepsis in the newborn.

Iron Deficiency in Children.

W. H. BARTLETT AND E. C. BEATTY, JUNIOR (*Am. J. Dis. Child.*, December, 1957) report a clinical trial of the effectiveness of the intramuscular injection of an iron dextran complex ("Imferon") in the treatment of iron deficiency anæmia in infants and children. Sixty-five infants and children were included, the ages ranging from two months to seven years, with a mean age of 14 months. The dosage of iron given was estimated by the formulæ body weight × [16-(hæmoglobin value × 1·3)], or, body weight × 1·5 (13-hæmoglobin value) = milligrammes of elemental iron required. The iron dextran complex was administered by deep intramuscular injection in the upper outer quadrant of the buttock. A maximum single dose of 200 milligrammes was never exceeded and there was never given more than 100 milligrammes per injection site. In-patients received consecutive daily doses and out-patients received consecutive weekly doses. A prompt and satisfactory correction of the anæmia without untoward effects resulted. It is suggested that this is a mode of therapy in proven iron deficiency anæmia which is rapid in its effect, which might often avert the need for transfusion in severe cases, and which is specially indicated where there is poor tolerance of iron given by mouth, gastro-intestinal disease adversely affected by iron given by mouth, or a failure of response to iron given by mouth.

Congenital Hæmolytic Anæmia in the Newborn.

C. S. STAMEY AND L. K. DIAMOND (*Am. J. Dis. Child.*, December, 1957) describe four infants with congenital hæmolytic anæmia, presenting as jaundice in the newborn period. In each of these the jaundice occurred within the first two days of life and became marked. Hæmatological investigation excluded hæmolytic disease due to Rh or ABO incompatibility and confirmed the diagnosis of congenital sphærocytic hæmolytic anæmia. In each of these four patients the serum bilirubin rose above 20 milligrammes per 100 millilitres and exchange transfusion was

carried out because the authors believed that a bilirubin as high as this carried with it a risk of kernicterus just as it does when the jaundice is due to Rh or ABO incompatibility. Progress was satisfactory. So far splenectomy has not been carried out on any of these patients, the authors preferring to watch the progress over a longer period of time before submitting the children to this operation. In an effort to obtain some idea of the frequency of jaundice in the newborn as the first sign of hereditary sphærocytosis, the authors reviewed the records of such patients admitted during the last 10 years to the Children's Medical Centre, Boston. This included 52 patients who were admitted at ages varying from one week to 10 years. Jaundice in the first few days of life was recorded in 23 of the 43 histories in which adequate detail was available. In four instances an ætiological label had been suggested; sepsis in one, AO blood group incompatibility in one, and physiological jaundice in two. It is impossible to define the basis of jaundice in any of these cases by this sort of retrospective view, but the authors believe that jaundice in the first few days of life is a commonly recorded feature in the history of a child in whom the diagnosis of hereditary sphærocytosis is made at a later age. They believe the offspring of a parent with this disease should be observed carefully in the newborn period and that the appearance of jaundice suggests that the infant may also have this disease. They believe that if the infant develops severe jaundice in the first few days he should be treated with exchange transfusion just as promptly as the erythroblastic infant.

The Ætiology of Cleft Palate.

E. J. STEIGLER AND M. F. BERRY (*Plast. & Reconstruct. Surg.*, January, 1958) have studied 164 families of children entered in a cleft palate clinic and review much of the available literature on the subject. A great many authorities agree that the cleft lip and cleft palate are definitely inheritable physical defects in a great many instances. Although the specific manner of inheritance has not been established, it is generally agreed that a transmissible atypical genetic factor is present in families exhibiting cleft palate. The authors conclude from their own study that there is a high incidence of this deformity among families in which cleft palate has once appeared. Because of the common association between cleft palate and other structural malformations, it is suggested that there may exist a common "malformation gene". The Rh factor does not appear to be concerned with cleft palate. Poor nutrition may be either a precipitating factor or an independent cause of cleft lip and cleft palate. The authors have also studied the association between cleft lip and palate and prematurity, spontaneous abortion and stillbirth.

Mesenteric Lymphadenitis in Childhood.

R. STRANG (*Scottish Med. J.*, November, 1957), reporting from Glasgow, describes non-specific mesenteric adenitis as a common condition in childhood for which there is no satisfactory explanation. Not all cases have evidence of infection elsewhere. Suppuration is extremely rare, in this author's experience less than two cases per thousand. A review of other cases with suppuration have shown that hæmolytic streptococci were present in most instances.

SURGERY.

Splenectomy for Hypoplasia of the Bone Marrow.

L. D. HEATON, W. H. CROSBY AND A. COHEN (*Ann. Surg.*, October, 1957) state that 12 of the 108 splenectomies performed at the Walter Reed Army Hospital during the past four years were performed on patients who had idiopathic hypoplastic disease of the bone marrow. Indications for the operation were thrombocytopenic purpura, severe anæmia or infection due to lack of granulocytes. Six of the patients were considerably improved after splenectomy, three were unimproved, and there were three deaths, all from infection and none related to splenectomy. A review of the literature by the authors indicates that the over-all mortality from idiopathic hypoplasia of the marrow is 81% where splenectomy is not used, but only 59% where it is used. On the other hand, among splenectomized patients of this group the mortality was 33%. The results of splenectomy in this disease are seldom dramatic, but a modest improvement may be life-saving. The authors state that splenectomy is not more widely used for the treatment of this disease because the results are not spectacular and recoveries are not complete; if we expect dramatic cures such as are often seen in idiopathic thrombocytopenic purpura or hæmolytic anæmia, disappointment will follow. They state that the immediate response after splenectomy may not reflect the ultimate benefit to the patient, for whereas in some cases improvement is prompt, in others the full response may be delayed for several months. They conclude that when the patients are wisely selected and adequately prepared about half of them will be benefited to some degree, and this benefit may mean the difference in survival or death.

The Fate of Tumour Cells in the Blood Stream.

G. E. MOORE, A. SANDBERG AND J. SCHUBARG (*Ann. Surg.*, October, 1957) find that tumour cells can be identified in smears of cellular concentrates from the blood of patients with cancer. In a series of 179 patients with operable and advanced lesions, tumour cells were present in the peripheral circulation in 93 instances. At operation blood samples obtained from veins draining tumour sites contained tumour cells either before or at the end of the operative procedure in 60 out of 109 patients. They found that there was no significant increase in the frequency of tumour cells in specimens secured after operative manipulation. They found a decrease in the number of circulating tumour cells following administration of chemotherapeutic agents. They observe that the finding and number of tumour cells present in the peripheral circulation cannot always be correlated with the patient's clinical condition. One patient admitted for chemotherapy for osseous metastases from breast carcinoma had numerous tumour cells in each of a series of peripheral blood samples, yet she was active and clinically well. In contrast, other patients in a terminal condition with extensive soft tissue and osseous metastases and rapidly progressing disease never had tumour cells in repeated blood specimens. The authors also state that the finding of tumour cells in the blood cannot be taken as an indication against radical surgery for malignant disease. They point out that to do so ignores the tumour cell destroying capacity of the host, and the appreciable number of long-term survivals of patients with gastro-intestinal cancers, some of whom must have had an exfoliation of cells into the circulation. Also, during the follow-up periods of such cases tumour cells were as common in survivors as in those who died from secondary spread.

Clinical Hypothermia.

W. G. WADDELL, H. B. FAIRLEY AND W. G. BIGELOW (*Ann. Surg.*, October, 1957), investigating the management of clinical hypothermia, found that some of the problems encountered in the rewarming of patients after surgery with hypothermia have been related to the tendency to develop a metabolic acidosis. This they had controlled by modifying the anæsthetic technique by the use of chlorpromazine, promethazine and meperidine. They avoided respiratory alkalosis during cooling and maintained a normal pH in an attempt to sustain the buffer system in a state of optimum efficiency. They present evidence to show that heparinized blood is superior to citrated blood for transfusion during hypothermia. It reduced the incidence of irreversible ventricular fibrillation. They observed a reversible, acute thrombocytopenia at low body temperatures, but they state that their studies have not contributed to the management of the occasional, severe, bleeding tendency encountered in hypothermia.

Shock in the Paraplegic Patient.

W. WILLIAMS AND J. WALKER (*Surgery*, October, 1957) report that out of seven paraplegic patients subjected to surgical operation in their hospital, four became shocked, all after relatively minor surgical procedures. The authors suggest that an increased liability to shock should be recognized as one of the complications of paraplegia, and that this is due to the inability of the vascular bed to respond by vasoconstriction to blood loss. This necessitates extra care in the pre-operative preparation and assessment of the circulatory state of the patient.

Prognosis in Hirschsprung's Disease.

O. SWENSON (*Ann. Surg.*, October, 1957) reviews a series of 200 patients who have been subjected to the removal of the aganglionic segment of colon for Hirschsprung's disease over the past 10 years. In this group there were six post-operative deaths. Out of the 194 survivors, in only five was the result classed as unsatisfactory.

British Medical Association.

TASMANIAN BRANCH: ANNUAL MEETING.

THE annual meeting of the Tasmanian Branch of the British Medical Association was held at the rooms of the Royal Society, Hobart, on March 29, 1958, the President, DR. M. W. FLETCHER, in the chair.

ANNUAL REPORT OF THE COUNCIL.

The annual report of the Council was read by Dr. K. M. Kelly and adopted. The report is as follows.

The Council has pleasure in presenting the annual report for the year ended December 31, 1957.

Membership.

The membership consists of 259 members, as against 252 members for 1956, making a total gain of seven.

Obituary.

It is with regret that we record the deaths of the following members: Dr. William J. Freeman, Dr. G. T. H. Harris, Dr. F. A. Ferris.

Meetings.

The annual general meeting of the Branch was held on March 16, 1957, at the Royal Society rooms, at which there were 49 members present.

The following office-bearers were elected:

President: Dr. M. W. Fletcher.

Vice-President: Dr. R. A. Lewis.

Medical Secretary: Dr. K. M. Kelly.

Honorary Treasurer: Dr. F. R. Fay.

Committee members elected were: Dr. K. J. Friend, Dr. L. H. Wilson, Dr. P. L. Dorney, Dr. A. J. M. Dobson, Dr. R. Wall, Dr. H. M. Fisher.

No other meeting was held during the year, as all business was carried out at meetings of the Southern and Northern Subdivisions.

Branch Council.

Thirteen meetings of the Council were held, eleven in Hobart and two in Launceston. Additional members of the Council were:

Federal Council Representatives: Dr. J. B. G. Muir, Dr. L. N. Gollan.

President-Elect: Dr. A. McL. Millar.

Secretary of Southern Subdivision: Dr. R. J. Hudson.

Secretary of Northern Subdivision: Dr. W. H. Hill.

Immediate Past President: Dr. A. O. Green.

The following attendances were recorded:

Dr. A. O. Green	11	Dr. R. A. Lewis	12
Dr. M. W. Fletcher	11	Dr. P. L. Dorney	7[2]
Dr. W. McIntyre	1[1]	Dr. W. H. Hill	8[2]
Dr. A. W. Young	2[1]	Dr. K. M. Kelly	9[2]
Dr. L. Jones	2[1]	Dr. A. J. M. Dobson	10
Dr. H. Engisch	1[1]	Dr. L. N. Gollan	12
Dr. K. J. Friend	8	Dr. R. Wall	9
Dr. A. McL. Millar	12	Dr. F. R. Fay	12
Dr. H. M. Fisher	9	Dr. J. B. G. Muir	9
Dr. R. J. Hudson	10	Dr. L. H. Wilson	7

Representation and Subcommittees.

Federal Council.

The Branch was represented on the Federal Council by Dr. J. B. G. Muir and Dr. L. N. Gollan, both of whom attended interstate meetings on behalf of the Branch. Dr. Muir was unable to attend one meeting and appointed Dr. K. M. Kelly as proxy. Appointment as Federal Councillor entails a great deal of thought and work, and the Branch owes much to their efforts on our behalf. They have both been reappointed to the positions for 1958.

[1] Retired after annual meeting.

[2] Appointed after annual meeting.

Matters Dealt with by Council.

Matters of importance dealt with by the Branch Council include:

National Health Service.

This year there were many small items referring to the National Health Service, although none were of major importance.

Several members pointed out anomalies in the schedule of benefits which were passed on to the Federal Council, and in some cases the action resulted in amendments to the schedule.

Efforts continue to be made to obtain an increase in the rates of payment for Pensioner Medical Services. Frequent approaches have been made to the Government by the Federal Council on this matter, and the Branch Council through its representatives has lent weight to the negotiations. These have so far been unsuccessful, but there is reason to suppose that eventually some improvement will result.

Efforts have also been made to provide higher hospital tables, and the Council has been active in support. Negotiations are now taking place at Federal level, but it is too early as yet to judge the result. There are some real difficulties, but the profession feels that these will eventually be overcome.

Medical Act.

During the year the *Medical Act* was altered, and the Council watched the matter closely. Talks were held with the Minister for Health, especially in the matter of alien doctors, and some changes in the final wording of the Act resulted.

Australasian Medical Congress (Tenth Session).

During the year the Congress committee met on many occasions, and have matters well in hand for the Congress to be held in March, in Hobart. Dr. F. R. Fay, as secretary, has been working very hard, and the various chairmen of subcommittees have their work so well in hand that the success of the venture seems certain.

Medical Schools.

During the year the question of a medical school for Tasmania was mooted, and Dr. R. A. Lewis was appointed to confer with the authorities on this matter. The result, seen in the Murray Report, is disappointing, inasmuch that it does not appear to be practical to start a school at the present time.

St. Helen's Hospital.

The Health Department was approached on two occasions in an effort to accelerate the renovations to St. Helen's Hospital in Hobart. It appears that it will be some months before the hospital will again be in operation. Since the date of this report we have lost another member by the death of Dr. Alan Pryde.

Advice to Members.

During the year several members have written to the Council on varied questions, including matters of ethics, difficulties with Federal or State departments, and conditions of practice. The Council gave advice and help where possible.

Conclusion.

Many other matters were dealt with which have not been included in this report as they are not of general interest to members. Many minor items have arisen through Federal Council and have already been reported in its proceedings in THE MEDICAL JOURNAL OF AUSTRALIA.

Representatives.

Representatives of the Branch on other bodies during the year have been:

Australasian Medical Publishing Company Limited: Dr. W. E. L. H. Crowther.

Road Safety Council of Tasmania: Dr. J. Phillips.

Federal War Relief Fund (1939-1945 War): Dr. R. A. Godfrey-Smith, Dr. T. Giblin, Dr. Franklin R. Fay.

Medical Officers' Relief Fund (1914-1918 War): Dr. B. Hiller, Dr. R. Whishaw, Dr. F. W. Fay.

Tasmanian Physiotherapists' Registration Board: Dr. A. McL. Millar, Dr. T. G. Hogg.

Tasmanian Post-Graduate Committee in Medicine: Dr. R. J. M. Dobson.

Tasmanian Health Education Council: Dr. G. A. Robbie, Dr. A. W. O. Young.

Committees.

Ethics Committee: Dr. R. A. Lewis, Dr. A. O. Green, Dr. R. Wall, Dr. A. McL. Millar, Dr. J. B. G. Muir, Dr. F. R. Fay, Dr. L. N. Gollan. No meetings were held in 1957.

Newsletter Committee: There were nine Newsleters published during the year by Dr. K. M. Kelly, Dr. P. L. Dorney and Dr. R. J. Hudson, by which members have been kept informed of matters of current interest.

Publicity Committee: This committee, comprising Dr. W. H. Hill, Dr. H. M. Fisher, Dr. L. N. Gollan, Dr. F. R. Fay, Dr. J. B. G. Muir and Dr. A. McL. Millar, formulates official British Medical Association statements given to the Press.

Workers' Compensation Committee: No business has arisen during the year for this committee, comprised of Dr. A. McL. Millar, Dr. A. O. Green and Dr. F. R. Fay.

Medical Fees Committee: This committee, which consisted of Dr. L. N. Gollan, Dr. W. H. Hill, Dr. R. J. Hudson, Dr. J. B. G. Muir, Dr. F. R. Fay, Dr. T. C. Butler and Dr. L. H. Wilson, did not meet during the year.

FINANCIAL REPORT.

The financial report was presented by Dr. Franklin R. Fay and adopted.

Clinical Meetings.—A feature of the year was a combined clinical and social evening in September. After a clinical meeting at Millbrook Hospital the members moved to the Colony Inn at New Norfolk and were joined by their wives at a barbecue dinner. All members present voted the evening a success and suggested it should be repeated annually. Unfortunately no other clinical evenings could be arranged. This is partly due to the four colleges each holding clinical week-ends during the year. As these meetings are open to all practitioners, they should make greater use of them. The support given them is disappointing.

Social.—The social evening tendered to new residents at the Royal Hobart Hospital by Hobart practitioners in February was enjoyed by those who attended. It is hoped that on the next occasion more residents will be able to attend. However, the Executive recommends that it should be repeated as it has considerable merit.

Executive Committee.

Seven meetings were held with an average attendance of five members. This was good, as it is difficult to find times satisfactory to all members.

RODNEY J. HUDSON,
Honorary Secretary.

REPORTS OF SUBDIVISIONS.

Southern Subdivision Annual Report, 1957.

Office-Bearers.

Chairman, Dr. A. W. Young; *Vice-Chairman*, Dr. K. Millingen; *Honorary Treasurer*, Dr. A. D. Corney; *Honorary Secretary*, Dr. R. J. Hudson; *Committee*, Dr. J. Correy, Dr. L. W. Knight, Dr. Paul Clarke. There were 129 members enrolled for the year.

Meetings.

Seven general meetings were held, including the annual general meeting. The Executive Committee met seven times. In addition a clinical evening followed by a social evening was held in September in place of the monthly meeting.

Lecturettes given at the monthly meetings were: "Some Impressions of Physiotherapy in New York and Canada", Miss P. Perkins; "Professional Relations" (symposium), Dr. A. D. Corney, Dr. J. B. Muir, Dr. J. R. M. Drew; "Civil Defence in Atomic Warfare", Dr. P. Braithwaite; "Superannuation Scheme for Self-Employed Persons", Mr. Hurley; "Some Impressions of Practice in Britain", Dr. K. M. Kelly; "Report on the Use of 'Rastinon'", Dr. J. Gunson.

General Business.

Annual Levy for Library.—Accounts were sent out by the treasurer this year separately from the annual subscription. The response was not good, and the position needs reviewing.

Medical School for Tasmania.—The subdivision strongly supported the efforts of the Branch Council to obtain the establishment of a medical school in Hobart. However, the Branch Council's efforts were unavailing. The subdivision will continue to give active support to the Council in its efforts to arrange better facilities for young Tasmanians to take up medicine at mainland universities.

Superannuation and Company Formation.—These questions occupied our thoughts and energies for a large part of the year. No really satisfactory solution was found. Members are still interested in the question, and some are in touch with such schemes operating in the mainland States.

Northern Subdivision Annual Report, 1957.

Office-Bearers.

Chairman, Dr. H. M. Fisher; *Vice-Chairman*, Dr. D. B. Nathan; *Honorary Secretary*, Dr. W. H. Hill; *Honorary Treasurer*, Dr. G. T. H. Harris; *Executive Members*, Dr. H. B. Gatenby, Dr. L. N. Gollan, Dr. W. R. Moloney.

Membership.

In December, 1957, the number of members enrolled was 112. This is an increase of two over the previous year.

Obituary.

It is with regret that we record the deaths of three colleagues: Dr. Frederick Allan Ferris, of Ulverstone, in March, 1957; Dr. George Thomas Hamlyn Harris, of Launceston, December 25, 1957; Dr. Alan Pryde, of Launceston, January 11, 1958.

Meetings.

Ten general meetings were held during the year, including the annual meeting in February. The average attendance was 25. We are indebted to the following members who either gave papers or presented clinical cases: Dr. C. Craig, "Modern Advances in Radiology as Seen in U.K."; Dr. W. W. Woodward, "Some Recent Experiences of Upper Alimentary Tract Lesions"; Dr. H. Roberts-Thomson, "Chronic Low Backache and Low Abdominal Pain in the Female"; Dr. Joan Farrar, "Recent Advances in Ophthalmology"; Dr. F. R. T. Stevens, "Polycythæmia", "Spastic Paraplegia"; Dr. J. L. Grove, "Ulcerative Colitis"; Dr. A. B. Holmes, "Cystic Tumour of the Maxilla", "Intermittent Hydronephrosis Treated by Pyeloplasty".

In addition, we had two very interesting addresses given by the Reverend R. H. Dean, B.A., B.Ed. (Principal of Scotch College, Launceston), on "Secondary Education in Tasmania and the Approach to a Medical Course", and Mr. Williams (National Mutual Life Association), who spoke on "Superannuation for the Self-Employed". Members of the dental profession were invited to attend this lecture.

The August meeting was held at the Burnie Public Hospital, when the guest lecturer was Professor R. A. Kellar, Professor of Obstetrics and Gynæcology of the University of Edinburgh. He spoke on "Ante-Partum Hæmorrhage". An interesting paper was given by Dr. T. G. Ingram on "Placenta Accreta". In the evening an informal dinner was held at the Menai Hotel, Burnie.

Annual Post-Graduate Week-End Course and Dinner.

The thirty-first annual post-graduate week-end course was held at the Launceston General Hospital from Friday, November 22, to Sunday, November 24; 57 members registered for the lectures. Visiting lecturers were Dr. L. O. S. Poidevin and Dr. H. R. Gilmore, both from the University of Adelaide. Each gave a clinical demonstration and three lectures: Dr. Poidevin, "Surgical Induction of Labour", "Cæsarean Section and its Sequelæ", "Diabetes in Pregnancy"; Dr. Gilmore, "Hypertension and Hypotensive Agents", "Diagnosis and Treatment of Thyroid Disease", "Pulmonary Heart Disease".

The annual dinner was held at the Hotel Metropole and was preceded by the chairman's party. An innovation was made this year by inviting the ladies, a venture which proved most successful. Seventy-four persons attended, of which 46 were members.

Obstetrical and Gynæcological Section.

The annual meeting was held on January 31, 1957. Dr. Roberts-Thomson was elected chairman and Dr. R. Kenihan honorary secretary. A new pro-forma for recording details of stillbirths and neonatal deaths was introduced, and the cooperation of the board of the hospital was sought and obtained for filing and storage of the forms. In March Dr.

BRITISH MEDICAL ASSOCIATION (TASMANIAN BRANCH.

Income and Expenditure Account for the Year Ended December 31, 1957.

INCOME.	£ s. d.	£ s. d.	EXPENDITURE.	£ s. d.	£ s. d.
To Secretarial Fees		312 0 0	By Members' Subscriptions		2,210 19 0
„ Printing and Stationery		69 16 3	„ Post-Graduate Fund		122 10 0
„ Postages		84 4 11	„ Interest:		
„ Code Address		3 3 0	Commonwealth Bonds	49 1 6	
„ Rental *re* Annual Meeting		1 10 0	Australasian Medical Publishing Company Limited	54 13 11	
„ Travelling Expenses		258 15 0	E.S. and A. Bank Limited	14 19 2	
„ Capitation Fees:			Mortgage	16 10 10	
Southern Subdivision	108 0 0				135 5 5
Northern Subdivision	81 0 0		„ Dinner		137 16 0
Federal Council	315 0 0		„ Car Badges		17 16 0
Australasian Medical Publishing Company Limited	252 0 0				
London: British Medical Association	449 13 3				
		1,205 13 3			
„ Dinner		137 16 0			
„ Annual Audit		8 8 0			
„ Post-Graduate Fund		102 10 0			
„ Typing (Minutes, Newsletter, etc.)		143 16 3			
„ Car Badges		85 8 11			
		2,413 1 7			
„ Surplus for year ending December 31, 1957		211 4 10			
		£2,624 6 5			£2,624 6 5

BALANCE SHEET.

LIABILITIES.	£ s. d.	£ s. d.	ASSETS.	£ s. d.	£ s. d.
Accumulated Fund Account:			Commonwealth Treasury Bonds (£1360)		1,327 5 0
Balance, January 1, 1957	2,248 1 0		War Savings Certificates		133 0 0
Plus Australasian Medical Publishing Company Limited	243 10 0		Furniture		30 0 0
Surplus for year	211 4 10		Australasian Medical Publishing Company Limited:		
		2,702 15 10	Debentures	995 0 0	
War Relief Contribution		2 11 0	Sydney (Cash in Hand)	52 16 3	
Building Fund		490 0 0			1,047 16 3
Sundry Creditors:			E.S. and A. Bank Limited		202 16 7
Post-Graduate Fund	2 10 0		Mortgage Investment		500 0 0
London: British Medical Association	33 12 0				
World Medical Association	1 1 0				
Adams and Bennetto	8 8 0				
		45 11 0			
		£3,240 17 10			£3,240 17 10

HEADQUARTERS FUND ACCOUNT.

LIABILITIES.	£ s. d.	ASSETS.	£ s. d.
To Balance, January 1, 1957	240 19 2	By Balance, December 31, 1957	248 4 4
„ Bank Interest	7 5 2		
	£248 4 4		£248 4 4

Audited and found correct.

ADAMS AND BENNETTO, Chartered Accountants (Aust.).

(Sgd.) FRANKLIN R. FAY,
Honorary Treasurer.

Kenihan was replaced by Dr. Wilson as honorary secretary. From May it was decided to record details of all Cæsarean sections following the method of the New Zealand Obstetrical Society. The May meeting was addressed by Dr. Roberts-Thomson on items of current interest during his trip abroad. At the July meeting cases were presented by Dr. Birchall, Dr. Moloney and Dr. Meares. For the September meeting an analysis of the stillbirths and neonatal deaths from the collected pro-formas was made. The meeting agreed that the analysis had been of value and should be continued. The November meeting was addressed by Dr. J. H. C. Morris on "Staphylococci".

Sir John Ramsay Memorial Library.

Every endeavour has been made to increase the facilities and cover of medical literature provided by the library. With the aid of generous financial support by the General Hospital Board, contributions from members of the profession and a donation from the subdivision, a number of additional journals have been subscribed to during the year and a considerable sum has been expended on books of reference.

Federal Council.

The Federal Council has had two meetings this year, and a great deal of time has been given to discussion of improve-

Southern Subdivision: Statement of Receipts and Payments for the Year Ended December 31, 1957.

RECEIPTS.	£ s. d.	£ s. d.
Balance brought forward, January 1, 1957		299 2 10
Subscriptions: Telephone Attendance Scheme		210 19 0
Royal Hobart Hospital Library Fund: Members' Subscriptions	140 14 0	
B.M.A. (Tasmanian Branch)	27 6 0	
		168 0 0
B.M.A. (Tasmanian Branch): Capitation Fees, 1957		108 0 0
Interest (Commonwealth Savings Bank)		5 17 3
		£791 19 1

PAYMENTS.	£ s. d.	£ s. d.
Typing and Duplicating		38 16 11
Salary: Telephone Attendance		169 0 0
Postage and Duty Stamps and Stationery		25 12 3
Christmas Present for Typist		1 5 10
Royal Hobart Hospital: Library Fund		157 10 0
Old Colony Inn, New Norfolk: Dinner	32 10 0	
Less: Received on Account	13 0 0	
		19 10 0
Balance carried forward, December 31, 1957		380 4 1
		£791 19 1

Northern Subdivision: Statement of Receipts and Payments for Year Ended December 31, 1957.

GENERAL FUND.

RECEIPTS.	£ s. d.	£ s. d.
To Balance at Bank, January 1, 1957		213 5 9
„ Interest: Launceston Bank for Savings	6 12 10	
Commonwealth Loan	1 6 0	
		7 18 10
„ Capitation Fee: B.M.A.		81 0 0
„ Post-Graduate Lecture Fees		80 6 6
		£282 11 1

PAYMENTS.	£ s. d.	£ s. d.
By Launceston General Hospital: Donation to Sir John Ramsay Memorial Library		25 0 0
„ Audit Fee		3 3 0
„ Printing, Stationery, Duplicating and Postage		71 3 11
„ Secretary's Honorarium		10 0 0
„ Post-Graduate Course (Dr. Poidevin and Dr. Gilmore): Fares		63 0 0
		172 6 11
„ Balance at Bank, December 31, 1957		210 4 2
		£282 11 1

SOCIAL FUND.

RECEIPTS.	£ s. d.	£ s. d.
To Balance at Bank, January 1, 1957		103 5 10
„ Dinner Subscriptions		128 1 6
„ Interest: Launceston Bank for Savings		2 14 4
		£234 1 8

PAYMENTS.	£ s. d.	£ s. d.
By Hotel Metropole: Cost of Dinner and Staff Gratuities		86 11 0
„ Menu Cards, Pianist, etc.		9 1 3
		95 12 3
„ Balance at Bank, December 31, 1957		138 9 5
		£234 1 8

Audited and found correct.

(Sgd.) A. H. WRIGHT, A.A.S.A. (WOOLLEY AND WRIGHT), Auditor.

TASMANIAN POST-GRADUATE COMMITTEE IN MEDICINE.

Statement of Receipts and Expenditure for Year Ended December 31, 1957.

EXPENDITURE.	£ s. d.	£ s. d.
To Australian Post-Graduate Federation in Medicine: Annual Subscription		66 0 0
„ Visit by Dr. Sosman	25 13 0	
„ Visit by Professor Weech	42 15 6	
„ Visit by Mr. C. P. Wilson	20 12 11	
		89 1 5
„ Hire of H.E.C. Theatrette		2 2 0
„ Printing of Circulars		2 11 10
„ Bank Fee		1 0 0
„ Balance at Bank	13 13 4	
„ Cash in Hand	1 1 0	
		14 14 4
		£175 9 7

RECEIPTS.	£ s. d.	£ s. d.
By Subscription from British Medical Association		100 0 0
„ Balance at Bank, December 31, 1956	74 8 7	
„ Cash in Hand, December 31, 1956	1 1 0	
		75 9 7
		£175 9 7

Audited and found correct.

R. A. ROWE.

ment of the National Health Service from the point of view of both the public and the doctor. The Council is still endeavouring to obtain an increase in fees for Pensioner Medical Service and also for local medical officers. Another subject with which the Council is at present dealing and which it hopes soon to finalize is that concerning the formation of companies by medical practitioners. We are indebted to Dr. L. N. Gollan, who represents us on the Federal Council. From him and from the monthly newsletters members were kept well informed of the work of our Association throughout the year.

General Business.

Hydatid Disease.—The subdivision gave its attention to the prevalence of hydatid disease in the community and considered methods of prevention. The matter was taken to the Branch Council and referred to the Public Health Department. Discussions are still continuing between the department and our delegate, Dr. W. W. Woodward.

St. Luke's Day.—It has been customary in past years for the rector of St. John's Church of England to hold a service on the Sunday nearest St. Luke's Day. This was called Hospital Sunday, and members of the profession were invited to participate. This year, to emphasize that St. Luke's Day is a remembrance of St. Luke the Physician, the Executive officially arranged the service. All members of the subdivision were circularized and invited to attend in academic dress. An evening service was held in St. John's Church of England. The address was given by the chairman (Dr. H. M. Fisher) and the lessons were read by Dr. Nathan and Dr. Gollan. Arrangements were made for a similar service at the Church of the Apostles. To both these services the nursing staffs of the hospitals were invited.

Veterinary Use of Antibiotics.—As various antibiotics were being used in the treatment of diseases in cattle, the subdivision felt that there was a risk of causing antibiotic resistance in people, particularly children, through milk supplies. This matter was referred to the Branch Council, which brought it to the attention of the National Health and Medical Research Council.

Executive Committee.—The Executive Committee met on 11 occasions. Attendances were as follows: Dr. Fisher 10, Dr. Nathan 9, Dr. Gollan 9, Dr. Harris 8, Dr. Moloney 7, Dr. Gatenby 6, Dr. Hill 11.

THE TASMANIAN POST-GRADUATE COMMITTEE IN MEDICINE.

Annual Report for 1957.

The Category A lecturer for 1957 was Professor R. J. Kellar, Professor of Obstetrics and Gynæcology in the University of Edinburgh. Professor Kellar gave one lecture in Burnie in association with a British Medical Association meeting, one lecture in Launceston and two lectures in Hobart. These lectures were not particularly well attended, a fact which did not go unnoticed by the lecturer. The lectures generally were of good value.

Category B Lecturers.

There were four Category B lecturers as follows: Dr. Sosman, Professor Weech, Mr. P. C. Wilson, Mr. E. Muir. Dr. Merrill Sosman was an American radiologist of eminence, and he came to Hobart only in March, 1957; his lecture was good and was well attended. Professor Weech, a distinguished American pædiatrician from Cincinnati, lectured in Launceston and Hobart, and also gave a public lecture at the Hydro-Electric Commission theatrette in Hobart. Mr. P. C. Wilson, an otolaryngologist, of England, lectured in Hobart and Launceston. Mr. E. G. Muir, senior surgeon, of King's College Hospital, London, very kindly gave a lecture in Hobart which was well attended.

Attempts were made to get Mr. Dixon Wright, a surgeon, of London, also to give a lecture, but his arrangements were altered at the last minute.

In all, this is a larger number of lecturers than we usually have in the course of twelve months through the Post-Graduate Committee.

Finance.

The decision of the British Medical Association to give to the Post-Graduate Committee a sum of money at the beginning of each year, as a levy on the members of the British Medical Association towards post-graduate lecturers, has made finance of the committee much easier and more simple.

Up until the beginning of 1957 it had been necessary to charge each member attending the lectures of post-graduate visitors something like a guinea per lecture in order to keep finances of the committee going. In the past year the British Medical Association has contributed £100 towards expenses of the committee. The Minister of Health has intimated that his department is prepared to forward to the committee a sum to £100 *per annum* if its annual expenses go beyond the sum donated by the British Medical Association. There was an inquiry during the year from the College of General Practitioners in regard to their representation on the Tasmanian Post-Graduate Committee. This matter is being taken up at Federation level, and no doubt during the next year the College of General Practitioners will be invited to send a representative to the Post-Graduate Committee.

JOHN L. GROVE.

REPORT ON PROCEEDINGS OF THE ROAD SAFETY COUNCIL, 1957-1958.

Meetings of the Road Safety Council during the past year have been occupied mainly with the consideration of speed limits. Mr. G. F. Sorell has, during the past three years, advocated an over-all limit of 50 miles per hour. He has gradually won over a majority of the Council to his opinion.

So much time has been devoted to speed limits that other matters have received little attention. The subject of vehicle inspection has lapsed for the time being. No further progress has been made regarding tests of alcohol concentration in the blood. These tests are still voluntary.

Your representative has raised the matter of vision tests for motorists, especially the reexamination of the vision of elderly motorists who may have held a driving licence for many years.

ELECTION OF OFFICERS.

It was announced that the officers of the Branch elected for the year ending December 31, 1958, are as follows:

President: Dr. A. McL. Millar.

President-Elect: Dr. L. H. Wilson.

Vice-President: Dr. R. A. Lewis.

Honorary Treasurer: Dr. Franklin R. Fay.

Medical Secretary: Dr. K. Melville Kelly.

Councillors: Dr. H. B. Gatenby, Dr. H. M. Fisher, Dr. D. B. Nathan, Dr. W. W. Wilson, Dr. J. F. Correy, Dr. A. J. M. Dobson.

AMENDMENTS TO RULES.

Dr. Franklin R. Fay moved the following motions of which requisite notice had been given:

1. That a new section (*e*) shall be added to Rule 86 to the effect: with respect to television and radio broadcasting, provided permission has been obtained from the Branch Council, and the script approved by that Council, there is no objection to the name of the speaker being announced in regard to any public talk delivered on television or radio or as a public lecture.

This was carried.

2. That in Rule 86 the word "British" be deleted and the word "Branch" inserted in its place.

This was carried.

Dr. P. Dorney moved the following motions of which requisite notice had been given:

1. That after the word "subdivisions" in the fourth line of Subsection (*a*) in Rule 39 the words "and the chairman of each subdivision" be added.

This was carried.

2. That Subsection (*b*) of Rule 46 be altered as follows: That the words "every fifty members (or part thereof)" in the second line be deleted and replaced by "the first 100 members and thereafter one for every fifty members (or part thereof)".

This was carried.

Dr. J. A. Bloomfield moved the following motion of which requisite notice had been given:

That in Rule 42, line 4, the words "thirty-one" be replaced by "twenty-one".

This was lost.

AUSTRALASIAN MEDICAL CONGRESS (B.M.A.): TENTH SESSION.

Dr. M. W. Fletcher moved that record be made of the excellent work and organization done by the President of Congress (Dr. J. B. G. Muir), the Honorary Secretary (Dr. Franklin R. Fay) and members of the Executive Committee

in making the Tenth Session of Congress the outstanding success it was. This was seconded by Dr. A. McL. Millar and carried with acclamation.

CONGRATULATIONS.

Dr. F. W. Fay moved and Dr. L. N. Gollan seconded that congratulations be sent from the meeting to Sir Ralph Whishaw on his receiving the honour of knighthood from Her Majesty the Queen. This was carried.

INDUCTION OF PRESIDENT.

Dr. M. W. Fletcher then introduced the incoming President, Dr. A. McL. Millar, and vacated the chair in his favour. Dr. Millar thanked Dr. Fletcher for his work in the interests of the Branch over the past year.

RETIRING PRESIDENT'S ADDRESS.

Dr. M. W. Fletcher then delivered his retiring president's address (see page 73).

Out of the Past.

In this column will be published from time to time extracts, taken from medical journals, newspapers, official and historical records, diaries and so on, dealing with events connected with the early medical history of Australia.

HISTORY OF THE FORMATION OF THE SOUTH AUSTRALIAN BRANCH OF THE BRITISH MEDICAL ASSOCIATION.[1]

[From the *Australasian Medical Gazette*, December, 1881.]

ON the 30th May, 1879, ten practitioners of Adelaide met together to consider the desirability of starting a Medical Association to be devoted chiefly to the discussion of original papers, exhibition of pathological specimens and cases, and the advancement of medical and surgical science generally. At the suggestion of Dr. Cawley, who was present, the idea was formed of starting a Branch of the British Medical Association, and met with general approval. Dr. Cawley said that he had already written to the General Secretary of the Association in London, asking for information with respect to the necessary steps to be taken in starting a Branch, but he had not yet received a reply. At a subsequent period an answer was received from the General Secretary (Francis Fowke Esq.) dated May 20th 1879, acknowledging the receipt of a letter from Dr. Cawley and giving the requisite information. To test the wishes of the members of the medical profession in the province a Provisional Committee of five was appointed to issue circulars, and convene a meeting of the whole Profession. A meeting thus convened was subsequently held on June 19th 1879, at which a resolution was passed to the effect "That a Society be formed to be called the 'South Australian Branch of the British Medical Association'". W. Gosse Esq. M.D. was elected the first President. The other officers were also elected, and a number of by laws made. As it was found that there were only six members of the British Medical Association in the colony, forms of application had to be sent to intending members, which after being duly filled up were forwarded to the General Secretary in London for election by the Committee of Council. Formal recognition as a Branch was granted and the by laws were approved by the Committee of Council on July 7 1880.

Correspondence.

A COMBINED VAGINAL-ABDOMINAL HYSTERECTOMY.

SIR: I have recently read a new book by Musgrove, "Abdominal Total Hysterectomy: A New Technique". The newness is devoted exclusively to the separation of the bladder from the cervix. This is admittedly the most difficult and dangerous part of the operation. For some years I have been performing a combined vaginal-abdominal operation which is very easy and safe and which I have not seen published. It also circumvents one of the absurdities of the Medical Benefits Scheme which makes an abdominal operation Schedule "A" and the better vaginal operation Schedule "B".

The operation may be performed as a simple hysterectomy or combined with an anterior and posterior perineorrhaphy as the case warrants. The patient is placed in the lithotomy position and the usual painting of the vagina performed. A bimanual examination is performed and, after placing an Auvard speculum in position, the cervix is pulled down to the introitus with a vulsellum. The cervix is examined visually, and it will be noted that no matter how carefully the vagina is swabbed there will be unsterilized areas. The usual incision is made at the lower border of the bladder and a cuff of about half an inch reflected off the bladder, which is then, usually very easily, separated from the cervix until the anterior surface of the uterus is reached. All bleeders are ligated, but a little oozing can be left. A small swab is placed in the cavity with a tape issuing from the vagina, and this is removed when the abdomen is prepared and the abdominal incision about to be made. The patient is placed in the Trendelenburg position and the operation proceeds as in an ordinary hysterectomy. There will be a small hæmatoma between the bladder and cervix which is a little disconcerting at first, but one becomes used to it after a few cases. The round and broad ligaments are divided and the peritoneum incised in the vesico-uterine fold, and after swabbing away the hæmatoma the cervix will appear ready to be delivered, and the advantage of the combined operation will be appreciated. The remainder of the operation is routine.

As a thorough vaginal toilet is necessary in total hysterectomy and the separation of the cervix from the bladder is easier and safer from the vagina than from the abdomen, especially in a case with fibroids, the operation is quicker and easier than an entirely abdominal operation.

Yours, etc.,

133 Newcastle Street,
East Maitland,
New South Wales.
July 5, 1958.

C. J. B. ARMSTRONG.

THE BOYLE-DAVIS GAG.

SIR: I am obliged to my friend Dr. James for his comments about the Davis gag (M. J. AUSTRALIA, June 14, 1958). I accept without reservation that Boyle told Dr. James he was responsible for putting the anæsthetic tube on the gag spatula, but I doubt this is correct. The chief reason is that Boyle never publicly claimed that he did so. The gag which was being used on the historic occasion mentioned in my letter certainly had an anæsthetic tube attached, and Boyle told us that this gag was given to him by Davis just prior to leaving the United States of America. In *The Lancet*, November 25, 1922, Boyle has a short article illustrating the gag with the anæsthetic tube on the spatula, and he writes as follows: "The gag shown in the accompanying illustration is a copy of the one designed by Dr. Davis and was brought back by me from America." In Mayer and Phelps catalogue, 1925, the gag is referred to as the Davis gag and is described as being introduced into England by Dr. Boyle. There is no mention of any alteration made by Boyle. They were the original makers of the gag in England. Pilling of Philadelphia, a famous firm of instrument makers, illustrate in their catalogue the gag with anæsthetic tube and refer to it as the Davis-Crowe gag. In his obituary notice in *The Lancet*, the *British Medical Journal* and the Lives of the Fellows of the Royal College of Surgeons of England there is no mention of Boyle's making any change or addition to the gag. It seems strange that Boyle, alluded to by Dr. James as "Cocky", divulged his secret only to Dr. James and towards the end of his career. I was not so much impressed by Boyle's modesty as Dr. James, who, by the way, must have been nearly forty years his junior. Boyle retired from his hospital in 1939 and died after a lingering illness in October, 1941, aged sixty-six years.

Yours, etc.,

55 Collins Street,
Melbourne, C.1,
July 2, 1958.

RAYMOND HENNESSY.

[1] From the original in the Mitchell Library, Sydney.

Universities.

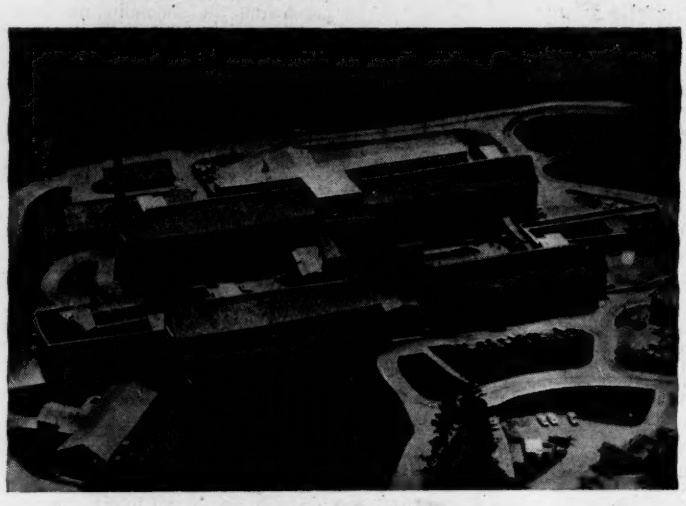
THE AUSTRALIAN NATIONAL UNIVERSITY.

The John Curtin School of Medical Research.

THE following detailed information about the John Curtin School of Medical Research in the Australian National University has been kindly supplied by the Dean of the School, Professor A. H. Ennor. It will be remembered that the School was formally opened by Sir Howard Florey on March 27, 1958.[1]

The Australian National University was founded in 1946 as a national centre for research and research training, initially in the fields of physical sciences, medical sciences and the social sciences.

There had long been complaints in Australia that many of the most able scientists left the country because of the greater attractions in universities and research institutions in Great Britain. Such complaints applied more to the medical sciences than to other natural sciences, for which the large and varied laboratories of C.S.I.R.O. provided first class facilities, whereas the only medical research institute in Australia with an international reputation was the relatively small Walter and Eliza Hall Institute of Medical Research in Melbourne.



The John Curtin School of Medical Research.

In a report to the Commonwealth Government in 1944, Sir Howard Florey suggested that a national institute for advanced medical sciences should be set up in Australia, and the John Curtin School of Medical Research, established as an integral part of a university devoted to research and research training, is the result of this suggestion. Sir Howard Florey was intimately associated with the development of the School from the time of his report until 1955, and the building he opened on March 27 is a monument to his inspiration and drive. There were no laboratories in Canberra in 1948 when the first professor was appointed, so the departments were started in laboratory space generously lent by several institutions—Biochemistry at the Commonwealth Serum Laboratories, Melbourne; Medical Chemistry at the Wellcome Research Institution in London; Microbiology at the Walter and Eliza Hall Institute in Melbourne; Experimental Pathology in Sir Howard Florey's Laboratories in Oxford; Physiology in the University of Otago in New Zealand.

In 1951 temporary laboratories were built in Canberra, and these were occupied between 1952 and 1957, when the departments transferred to the present building (see photograph). This is a brick building about 170,000 square feet in floor area. It is built in an H-shape, with four wings for laboratories (which are mainly confined to the upper two floor levels) and a central spine housing lecture theatre, seminar rooms, offices, tea-rooms and library. The lower levels of the building house many of the service departments: store, photography, media kitchens, mechanical plant, etc. In addition there are two animal houses, each of some 7000 square feet floor area (one for non-infected and the other for infected animals), an animal breeding establishment some four miles away, and a large light engineering workshop.

The laboratory wings have on the south side laboratories 20 feet deep and on the north side service rooms (hot rooms, cold rooms, etc.) and studies 14 feet deep. The laboratory layout on each floor is adapted to the needs of the particular department, but within the departments it follows a standard plan.

At present there are five departments—Biochemistry, Experimental Pathology, Medical Chemistry, Microbiology and Physiology. Professor A. H. Ennor, head of the Department of Biochemistry, is also Dean of the School. His department comprises nine staff and four research students, and is concerned principally with enzymology and phosphorylated guanidines. Dr. F. C. Courtice, well known for his researches on physiology of lymph flow, etc., has just been appointed to the Chair of Experimental Pathology. Professor Adrien Albert heads a group of seven research workers and two research students in the Department of Medical Chemistry. His work on heterocyclic chemistry is familiar to most British scientists, and he now has greatly increased facilities for this work. Professor F. Fenner, with seven staff members and eight research students, is investigating various aspects of animal virology, principally with the pox viruses and influenza viruses. The Department of Physiology, headed by Professor Sir John Eccles, specializes in neurophysiology. Professor Eccles is at present President of the Australian Academy of Science. His distinguished investigations made by micro-electrode methods are widely known, and he is assisted in this work by seven staff members and four research students.

At present the total research staff is about 40, and there are some 20 Ph.D. students; but the John Curtin School of Medical Research is still in the process of growth, both in the sense that several new departments will be developed over the next few years to round out gaps in the present structure, and in the development of each individual department. The new building just opened by Sir Howard Florey provides excellent facilities in a wide range of the medical sciences, and already the School is established as a research institution well known throughout the world.

[1] M. J. AUSTRALIA, 1958, 1: 677, 684 (May 17).

Notes and News.

Journal Wanted.

We have received a request for a copy of THE MEDICAL JOURNAL OF AUSTRALIA, September 5, 1953, but our stocks are exhausted. If any reader has a copy of this number which he no longer requires, we should be grateful to receive it.

Foam Doll for Medical Instruction.

A fœtal doll for training midwives and doctors, so lifelike that it not only looks but feels and "functions" like a real fœtus, is being produced by a British toy company. An actual replica of an anatomically normal stillborn infant weighing about six and a half pounds, the doll is made of a foam "Latex" developed specially for the purpose, and has jointed movements with an appropriate amount of resistance to manipulation. The foam "Latex" rubber has a skin-like feel, particularly when moistened. A metal skeleton, embedded in the rubber, allows only normal joint movements, so that, for example, the knee and elbow joints cannot be over-extended and the limbs cannot be bent between joints. A hard composition skull is incorporated in the head and provides an accurately positioned, soft anterior fontanelle and a lower jaw which can be held through the open mouth during delivery of the head. The doll is produced by the Chad Valley Company, Limited, Harborne,

Birmingham. The idea for its production came from the Obstetric Medical Research Unit of the University of Aberdeen.

The Dermatological Association of Australia (British Medical Association).

The Dermatological Association of Australia (British Medical Association) will hold its annual general meeting at Surfers' Paradise, Queensland, from July 21 to 25, 1958. A Trade Exhibition will also be held at the same time.

The Australian Fellowship of the Israel Medical Association.

The fourth World Assembly of the Israel Medical Association will be held in Jerusalem, Tel Aviv and Haifa from August 12 to 24, 1958. The detailed programme may be obtained from Dr. J. Bickels, 1 Heftman Street, Tel Aviv, Israel, or from the honorary secretary of the Australian Fellowship of the Israel Medical Association, Dr. E. H. Taft, 33 Collins Street, Melbourne.

Fourth International Congress of Psychotherapy.

The fourth International Congress of Psychotherapy will be held from September 1 to 7, 1958, in Barcelona, and is organized by the Sociedad Española de Medicina Psicosomatica y Psicoterapia. The main theme of the congress will be "Psychotherapy and Existential Analysis". This subject has been selected because, in spite of the great progress accomplished in the field of psychological medicine through psychoanalysis, there is an urgent necessity to confront it with other conceptions of the human being, and among those conceptions it is considered that the most important is the one derived from kierkegaard or the existential concept. The purpose of this congress is to study all the eventual psychotherapeutical possibilities of this concept. In addition to the general assemblies dedicated to the main theme, a number of special sections to discuss important current psychotherapeutic problems are envisaged.

The reports of the plenary sessions will be simultaneously translated into the official languages of the congress, namely, Spanish, English, French and German.

The proceedings of the congress will be published in the review *Acta Psychotherapeutica, Psychosomatica et Orthopædagogica".*

Further information may be obtained from the secretary of the congress, Cátedra de Psiquiatría de la Facultad de Medicina, Casanova 143, Barcelona.

Post-Graduate Work.

THE POST-GRADUATE COMMITTEE IN MEDICINE IN THE UNIVERSITY OF SYDNEY.

Planning the Future.

THE Post-Graduate Committee in Medicine in the University of Sydney announces that a panel discussion on "Planning the Future" will be held on Monday, July 21, 1958, at 8.15 p.m. in the Maitland Lecture Theatre, Sydney Hospital.

The chairman will be Dr. V. M. Coppleson, and the members on the panel will be Dr. John Hunter, Dr. Ralph Reader, Dr. Munro Alexander, Dr. C. C. Jungfer and Dr. H. Selle. Six resident medical officers will act as monitors to represent different interests and aspirations of recent graduates. They are Dr. D. G. Falles, Dr. G. E. Scarf, Dr. J. S. Taylor, Dr. D. S. Child, Dr. John Harley and Dr. D. J. Deller.

All resident medical officers and recent graduates are invited to attend, and those wishing to put forward any questions should contact one of the monitors prior to the discussion.

THE MELBOURNE MEDICAL POST-GRADUATE COMMITTEE.

PROGRAMME FOR AUGUST, 1958.

Gynæcology and Obstetrics.

A FULL-TIME refresher course in gynæcology and obstetrics, designed for general practitioners, has been arranged from August 11 to 22, 1958. This will consist of lectures, demonstrations, ward rounds and quiz sessions, conducted by the medical staff of the Royal Women's Hospital, and will include

DISEASES NOTIFIED IN EACH STATE AND TERRITORY OF AUSTRALIA FOR THE WEEK ENDED JUNE 28, 1958.[1]

Disease.	New South Wales.	Victoria.	Queensland.	South Australia.	Western Australia.	Tasmania.	Northern Territory.	Australian Capital Territory.	Australia.
Acute Rheumatism	2	5(2)	1(1)	..	..	..	..	..	8
Amœbiasis	..	..	..	..	..	..	..	..	..
Ancylostomiasis	1	..	..	..	..	..	5	..	6
Anthrax	..	..	..	..	..	..	..	..	..
Bilharziasis	..	..	..	..	..	..	..	..	..
Brucellosis	..	..	..	..	..	..	..	..	..
Cholera	..	..	..	..	..	..	..	..	..
Chorea (St. Vitus)	..	..	..	..	..	..	..	..	..
Dengue	..	..	..	..	..	..	..	..	..
Diarrhœa (Infantile)	..	9(7)	1	..	..	..	..	..	10
Diphtheria	..	..	..	..	3(3)	..	..	..	3
Dysentery (Bacillary)	..	2(2)	..	1	3(3)	..	..	..	6
Encephalitis	..	..	..	..	..	..	..	..	..
Filariasis	..	..	..	..	..	..	..	..	..
Homologous Serum Jaundice	..	..	..	..	..	..	..	..	..
Hydatid	..	..	..	..	..	..	..	..	..
Infective Hepatitis	66(41)	14(5)	5	2(1)	2	1	..	1	91
Lead Poisoning	..	..	..	..	..	..	..	..	..
Leprosy	..	..	..	..	..	..	1	..	1
Leptospirosis	5	..	2(1)	..	..	..	..	..	7
Malaria	..	..	..	..	..	..	..	..	..
Meningococcal Infection	6(4)	4(2)	1(1)	..	2(1)	..	..	..	13
Ophthalmia	..	..	..	..	..	..	..	..	..
Ornithosis	..	..	..	..	..	..	..	..	..
Paratyphoid	1(1)	..	..	..	..	..	..	..	1
Plague	..	..	..	..	..	..	..	..	..
Poliomyelitis	..	..	..	..	..	..	..	..	..
Puerperal Fever	..	..	..	..	..	..	..	..	..
Rubella	..	24(20)	..	1	26(23)	1	..	..	52
Salmonella Infection	..	..	..	4(4)	..	..	..	..	4
Scarlet Fever	26(7)	26(18)	3(2)	1(1)	10(10)	..	..	1	67
Smallpox	..	..	..	..	..	..	..	..	..
Tetanus	..	..	..	..	..	..	..	..	..
Trachoma	..	..	..	..	2(2)	..	1	..	3
Trichinosis	..	..	..	..	..	..	..	..	..
Tuberculosis	33(20)	12(9)	34(14)	1	5(2)	4(1)	..	..	89
Typhoid Fever	..	..	..	..	1(1)	..	..	..	1
Typhus (Flea-, Mite- and Tick-borne)	3	..	1	..	..	..	..	..	4
Typhus (Louse-borne)	..	..	..	..	..	..	..	..	..
Yellow Fever	..	..	..	..	..	..	..	..	..

[1] Figures in parentheses are those for the metropolitan area.

sessions by Professor John McKelvey, of Minnesota. It will be desirable for those taking part to wear long white coats while in the wards. Limited accommodation is available at the hospital for residence.

The fee for this course is £14 14s., and enrolments on their prescribed form should be made with the Post-Graduate Committee by July 28, 1958. The fee for residence is £7 10s. per week, payable to the hospital. The enrolment form should indicate whether residence is required.

Visit of Professor John L. McKelvey.

Attention is drawn to the visit of Professor McKelvey to the University of Melbourne, to his lecture at 8.15 p.m. on August 27, 1958, in the Public Lecture Theatre, and to his sessions at the Royal Women's Hospital, detailed in last month's programme.

Lecture in the Scientific Basis of Medicine.

The following lecture in the scentific basis of medicine will be given at 8 p.m. on Friday, August 1, in the Main Lecture Theatre, Royal Melbourne Hospital: "Pulmonary Function Studies in Clinical Investigation", by Dr. B. H. Gandevia. All members of the profession are invited, without fee.

Course in Psychiatry.

The following lectures will be given during August, 1957, at 8.15 p.m. in the Small Lecture Theatre, Royal Melbourne Hospital.

Schizophrenia: August 7, "Hall-marks of Early Schizophrenia", Dr. A. Meares; August 14, "Some Aspects of Treatment of the Early Case", Dr. Ian Martin.

Organic Approaches in Psychiatry: August 21 and 28, "The Acute Psychoses", Dr. J. F. J. Cade.

Country Courses.

Bendigo.—On Friday, August 1, at the Bendigo Base Hospital, at 8 p.m., Mr. D. B. Duffy will speak on "The Diagnosis, Investigation and Management of Hæmaturia". The local secretary is Dr. A. J. Walters, 514 High Street, Golden Square, Bendigo.

Ballarat.—On Thursday, August 28, at 8.15 p.m., at Craig's Hotel, Professor John G. Hayden will speak on "Hypertension". The local secretary is Dr. N. Pescott, 626 Sturt Street, Ballarat.

Fees for these two courses are at the rate of 15s. per lecture, but those who have paid an annual subscription to the Committee are invited without further charge.

Flinders Naval Depot.

At Flinders Naval Depot on August 13, at 2.30 p.m., Dr. Murray Maxwell will speak on "Recent Advances in Chest Diseases". This meeting is to be held by arrangement with the Royal Australian Navy.

OVERSEAS LECTURERS: FORTHCOMING VISITS.

Professor F. A. R. Stammers.

Professor F. A. R. Stammers, C.B.E., T.D., B.Sc., F.R.C.S., of the Department of Surgery, Queen Elizabeth Hospital, Birmingham, will visit Melbourne as Category A Lecturer of the Australian Post-Graduate Federation in Medicine. He will give four evening lectures as follows: at 8.15 p.m. on September 1, 9 and 11 in the B.M.A. Hall, and at 5.15 p.m. on September 4 in the R.C.O.G. Hall, 8 LaTrobe Street. A detailed programme will be published shortly.

Professor Charles Illingworth.

Professor Charles Illingworth, surgeon, of Glagsow, will visit Melbourne for one week from October 6.

Fees for attendance at lectures by these visitors will be at the rate of 15s. per lecture, but those who have paid an annual subscription to the Committee will be invited without further charge.

INFORMATION.

The address of the Melbourne Medical Post-Graduate Committee is 394 Albert Street, East Melbourne. Telephone: FB 2547.

Nominations and Elections.

THE undermentioned have applied for election as members of the New South Wales Branch of the British Medical Association:

Wechsler, Helen, M.D., 1938 (Univ. Vienna) (registered in accordance with the provisions of Section 17 (1c) of the *Medical Practitioners Act*, 1938-1957), 90 Liverpool Road, Enfield, New South Wales.

Renouf, Noel Arnold, M.B., B.S., 1956 (Univ. Sydney), 1 Greenhills Street, Croydon, New South Wales.

The undermentioned have applied for election as members of the South Australian Branch of the British Medical Association:

Brown, Shelagh, M.B., Ch.B., 1950 (Univ. Sheffield).
Urban, Marianne, M.B., B.S., 1958 (Univ. Adelaide).
Neate, Robert James, M.B., B.S., 1957 (Univ. Adelaide).

The undermentioned have been elected as members of the South Australian Branch of the British Medical Association: Stokoe, Norman Leslie, M.B., Ch.B., 1945 (Univ. Edinburgh), D.O. (London), 1951, F.R.C.S. (Edinburgh), 1953; Fails, Mervyn J., M.B., B.S., 1958 (Univ. Adelaide).

Diary for the Month.

JULY 22.—New South Wales Branch, B.M.A.: Hospitals Committee.
JULY 23.—Victorian Branch, B.M.A.: Council Meeting.
JULY 24.—New South Wales Branch, B.M.A.: Clinical Meeting.
JULY 25.—Queensland Branch, B.M.A.: Council Meeting.
JULY 31.—South Australian Branch, B.M.A.: Scientific Meeting.
JULY 31.—New South Wales Branch, B.M.A.: Branch Meeting.

Medical Appointments: Important Notice.

MEDICAL PRACTITIONERS are requested not to apply for any appointment mentioned below without having first communicated with the Honorary Secretary of the Branch concerned, or with the Medical Secretary of the British Medical Association, Tavistock Square, London, W.C.1.

New South Wales Branch (Medical Secretary, 135 Macquarie Street, Sydney): All contract practice appointments in New South Wales. Anti-Tuberculosis Association of New South Wales. The Maitland Hospital.

South Australian Branch (Honorary Secretary, 80 Brougham Place, North Adelaide): All contract practice appointments in South Australia.

Editorial Notices.

ALL articles submitted for publication in this Journal should be typed with double or treble spacing. Carbon copies should not be sent. Authors are requested to avoid the use of abbreviations and not to underline either words or phrases.

References to articles and books should be carefully checked. In a reference the following information should be given: surname of author, initials of author, year, full title of article, name of journal, volume, number of first page of the article. The abbreviations used for the titles of journals are those adopted by the Quarterly Cumulative Index Medicus. If a reference is made to an abstract of a paper, the name of the original journal, together with that of the journal in which the abstract has appeared, should be given with full date in each instance.

Authors submitting illustrations are asked, if possible, to provide the originals (not photographic copies) of line drawings, graphs and diagrams, and prints from the original negatives of photomicrographs. Authors who are not accustomed to preparing drawings or photographic prints for reproduction are invited to seek the advice of the Editor.

Original articles forwarded for publication are understood to be offered to THE MEDICAL JOURNAL OF AUSTRALIA alone, unless the contrary is stated.

All communications should be addressed to the Editor, THE MEDICAL JOURNAL OF AUSTRALIA, The Printing House, Seamer Street, Glebe, New South Wales. (Telephones: MW 2651-2-3.)

Members and subscribers are requested to notify the Manager, THE MEDICAL JOURNAL OF AUSTRALIA, Seamer Street, Glebe, New South Wales, without delay, of any irregularity in the delivery of this Journal. The management cannot accept any responsibility or recognize any claim arising out of non-receipt of journals unless such notification is received within one month.

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